MOTOR AGE

VOL. X NO. 14 CHICAGO, OCTOBER 4, 1906 $2.00 Per Year

ON THE EVE OF THE VANDERBILT

SHEPARD IN A HOTCHKISS RACER TURNING KRUG'S CORNER IN A PRACTICE ROUND

NEW YORK, Oct. 3—Special telegram —Here it is the eve of the Vanderbilt and it now looks as if seventeen of the eighteen cars eligible for the final Saturday will start. The speedsters all have had plenty of practice on the course, everyone is here, the roads have been put in condition and tomorrow morning probably will see the end of the training. Foxhall Keene is a doubtful starter, but all the others are eagerly waiting for the big international road race.

It is believed that few entrants will care to run further risk of an eleventh-hour breakage of their cars with the big race itself but 3 days off. Almost all the cup candidates accordingly took advantage today of the fine weather and improved condition of the course for final spins. Most of them took no risk and drove with conservative caution. Louis Wagner, however, could not resist the temptation of making a fast try-out of his the first practice he has had a chance to have with the 100-horsepower Darracq he is to drive in the race. Yesterday, it will be remembered, he scored a lap in 29 minutes in the car Hemery drove to victory last year. He was timed today in 26 minutes, which is a rate of 68½ miles an hour and beats the 27 minutes scored by Jenatsy yesterday. Only four other drivers were credited with laps at all fast—Jenatsy and Lancia, 30; Clement, 32, and Nazzaro, 33. An unlucky spill befell the Frayer-Miller. Frank Lawwell had completed his first round and was passing through Manhasset on the second when a left hind wheel collapsed and let down the car on the ground. Neither Lawwell nor his mechanic was injured. Lee Frayer thinks that repairs can be made by Saturday; if not Lawwell will pilot the Frayer-Miller that Lee Frayer drove in the eliminating trial a week ago Saturday.

STARTERS IN THE BIG RACE

No.	Driver	Car	Team	Start
1	Le Blon	Thomas	American	6:00
2	Heath	Panhard	French	6:01
3	Jenatzy	Mercedes	German	6:02
4	Lancia	Fiat	Italian	6:03
5	Lawwell	Frayer-Miller	American	6:04
6	Shepard	Hotchkiss	French	6:05
7	Luttgen	Mercedes	German	6:06
8	Nazzaro	Fiat	Italian	6:07
9	Tracy	Locomobile	American	6:08
10	Wagner	Darracq	French	6:09
11*	Keene	Mercedes	German	6:10
12	Cagno	Itala	Italian	6:11
14	Harding	Haynes	American	6:12
15	Clement	Bayard	French	6:13
16	Wellschott	Fiat	Italian	6:14
17	Christie	Christie	American	6:15
18	Duray	De Dietrich	French	6:16
19	Fabry	Itala	Italian	6:17

*Doubtful starter.

The following times were taken for single laps in addition to those given above: Luttgen, 40; Shepard, 58; Tracy, 69, and Heath, 39. Roberts made a round in the Thomas in 44. Christie also had his car out. John Haynes was again at the wheel of the Haynes, which makes it seem probable he and not Harding will be its driver on Saturday. Lytle has his Pope-Toledo at the Bull Head camp again, awaiting the decision of the racing board tonight as to its restoration to the team, which the concensus of opinion deems highly improbable.

The chances seem to be against Foxhall P. Keene's starting, owing, he says, to the refusal of his fellow entrant on the German team, Robert Graves, to lend him one of his extra pairs of cylinders to replace the pair whose heads he cracked in practice on Sunday. Keene says when he approached Jenatsy for the loan Jenatsy consented, but that Graves countermanded the loan. It will be remembered that the two racing millionaires had a row last year over Graves handing out to Keene No. 13. Keene put up a big kick and secured a re-drawing, the hoodoo number going to Campbell, who painted an X on

EXAMINING A LOCOMOBILE'S PISTON

TEMPORARY MACHINE SHOP OF THE LOCOMOBILE PEOPLE

his car instead of 13. There has been friction between the two sportsmen ever since. Keene thinks that both having undertaken to represent the Automobile Club of Germany, it is up to Graves to help him in his present predicament. He states his willingness to sign an iron-bound contract that he will return the cylinders to Graves should an emergency arise requiring them, and in that event withdraw from the race.

TUESDAY ON THE COURSE

New York, Oct. 2—With the time left safely available for practice as short as it is there was the largest turnout yet of cup candidates for this morning's tryouts. In face of this it was a pity that rain during the night had made the course so slippery and dangerous that few of the drivers risked more than easy canters around the circuit. There has been much jealous emulation among the cup candidates during this preliminary practice for the honor and advertising of fast and, if possible, record laps. Jenatzy seems to have been thoroughly imbued with the racing fever and has invariably driven his Mercedes close to its speed limit. This morning the clockers timed him at 27 minutes. Many were skeptical of his having covered the whole course, but after completing the circuit Jenatzy returned to Krug's corner and stoutly maintained that he had made no cut. If not, then, despite the muddy, slippery roads, the Belgian cut the 28 of Weilschott and the 28½ of Tracy, which were the best previous records.

The other foreigner to throw on all power in this morning's practice was Louis Wagner. The car he intends to use on Saturday not yet having been gotten through the custom house or not, anyhow, evidently being ready for speeding, Wagner mounted "Darracq No. 18," in which Hemery drove to victory last year. The famous old campaigner carried Wagner around the 29.7 miles' circuit through the mud in 29 minutes.

Joe Tracy gave the Locomobile an easy breather in 52 minutes and John Haynes made a couple of rounds in 39 and 40 minutes. It does not seem positively settled who will be the Haynes pilot on Saturday. There is a story afloat of a suggested competitive time test among John Haynes, Frank Nutt and H. N. Harding, to which the latter refused to consent.

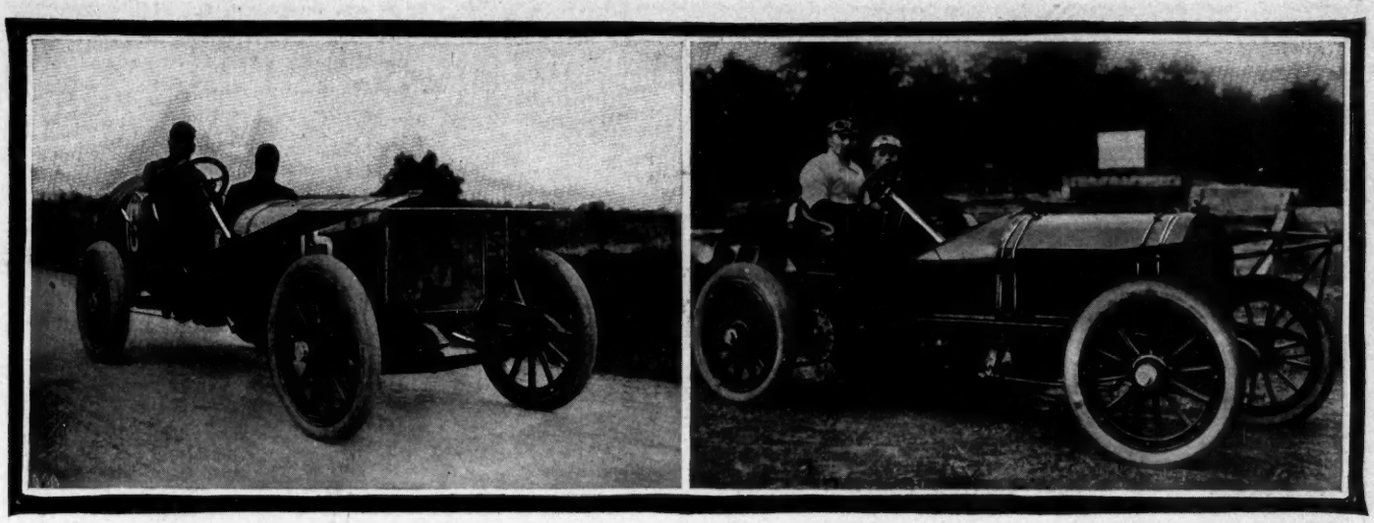
E. R. Thomas is much cut up over sundry criticisms that have been made of his employment of a foreign designer and foreign drivers in his effort to win for the United States the coveted cup and declares that his motives and patriotic intentions in the expenditure of a big sum of money to this end have been misconstrued. In a personal letter to the writer, who takes the liberty of quoting from it, he has the following to say:

"Notwithstanding the fact that my three entries for the Vanderbilt cup race have cost me over $100,000 in my endeavors to retain the cup for America, all my efforts seemed to have been misconstrued by the general public, and, instead of being met with praise, I have been censured very much, principally for the reason of not employing American drivers. As a matter of fact, Caillois is my Paris agent and first induced me to build the racing cars. We expected to have them ready by last April, and, had they been thoroughly tried out, we believe our chances would have been six out of ten to win the cup.

"After the Vanderbilt race we expected to send them abroad to the various racing circuits, which is also another reason why we should have French drivers. Positively there was not an American driver available who had equal experience with any of the real French drivers, and what was the use of incurring the enormous expense and losing the race by inexperienced drivers? I shall certainly not send my cars abroad if I cannot win the encouragement of the American public."

In discussing tomorrow night's meeting to consider the Pope-Toledo appeal, Chairman Thompson said to the writer today: "I called a meeting of the board to consider the appeal of the Pope people and expect a very full attendance. Even if the

CHANGING A MICHELIN TIRE FITTED WITH DETACHABLE RIMS



CLEMENT, ONE OF FRANCE'S HOPES

JENATZY OF THE GERMAN MERCEDES TEAM

Pope people can prove their statements I would very much like them to show me how at this late day we can restore their car to the team. The Frayer-Miller protest was put in in good time and proper shape. The Pope-Toledo people confessed to the truth of the charges and we disqualified Lytle. If other cars were pushed there must have been people to see and report the pushing and the protests should have been made at once.''

It would seem from the above that the chairman of the board believes that it is too late now to make changes based on late evidence presented after the drawing for places. The prevailing opinion is that there will be no eleventh-hour change in the American team.

MONDAY'S ROAD WORK

New York, Oct. 1—The most impressive performance so far in all the preliminary practice was the feat of Joe Tracy today in covering two rounds of the course, a distance of 59.4 miles, in 58 minutes. The American champion made his first circuit in 29½ and his second in 28½ minutes. Weilschott, of the Fiat trio, alone is credited by the clockers with a faster round. It was made in 28 minutes Saturday and his backers insist that the course was not cut to avoid any of the bad spots on the backstretch. Tracy's driving rather opened the eyes of the foreigners to the speed possibilities of his car and his own skill and daring as a driver. Tracy also made a circuit in 29 Saturday. His practice record makes by far the best showing of any of the cup candidates.

Other fast rounds in practice since the course was thrown open for early morning speeding have been: Lancia, 31 and 29; Nazzaro, 31 and 32; Jenatzy, 30; Weilschott, 31½ and 28, and Duray, 30.

Close at the heels of Tracy in today's try-outs, however, were Jenatzy, with a round in 29½, and Duray with a lap in 30. Albert Clement made his first racing appearance on the course and drove his Clement-Bayard a round in 45—rather slow but it was his first try of the route with his racer. Wagner has not yet got his Darracq from the custom house and ready for a racing spin.

''Baby'' Lehman, who is Shepard's mechanic, is over 6 feet in height and tips the beam a half a century over 200, made three circuits in the boss's Hotchkiss in 41, 37 and 55½. Heath's score was 39 and 36½, and Luttgen's 38 and 42. Weilschott, Lancia and Nazzaro made the round in a touring car.

With twelve or the eighteen drivers in the coming race having competed either in the Vanderbilt race of last year or the elimination trials of last Saturday, the writer has taken pains to pick out for the purpose of showing the highest speed yet officially obtained by them set forth in miles per hour. The winning average of Hemery in the last Vanderbilt race was 62.34 and of Tracy in the eliminating race, 54.38 miles an hour. The fastest averages of the twelve follow:

Driver Car	Fastest Rate	Race
Lancia, Fiat	72.94	Vanderbilt
Jenatzy, Mercedes	69.16	Vanderbilt
Nazzaro, Fiat	69.07	Vanderbilt
Wagner, Darracq	68.23	Vanderbilt
Duray, De Dietrich	66.63	Vanderbilt
Heath, Panhard	66.59	Vanderbilt
Keene, Mercedes	64.35	Vanderbilt
*Tracy, Locomobile	61.37	Vanderbilt
Christie, Christie	56.22	Vanderbilt
Le Blon, Thomas	56.10	Eliminating
Lawwell, Frayer-Miller	53.61	Eliminating
Harding, Haynes	49.61	Eliminating

Clement and Luttgen, who were in the first Vanderbilt race, did not compete last year. Cagno, Fabry, Weilschott and Shepard will race on Long Island for the first time on next Saturday.

THE FIAT TEAM—WEILLSCHOTT, NAZZARO AND LANCIA

RUMORS ABOUT PROTESTS

New York, Oct. 1—It is by no means positively settled that the five cars included in the drawing for the order of start in the Vanderbilt cup contest next Saturday will be the quintet that will finally face the starter as the American team. The impossibility of the five cars originally chosen being named even at this late day as positive representatives to be of the United States arises from a statement attributed to Chairman Thompson today that the commission, at a meet-

ROBERTSON AND HIS MECHANIC STEAL AWAY FROM HOSPITAL

ing to be held on Wednesday evening at Garden City, at which the western members of the racing board would be present, would consider the facts and affidavits the Pope-Toledo people say they have at hand in support of their claims that other cars also violated the rules by being started at various times during the contest otherwise than by their own power. On the strength of this alleged promise of a review of the case, Lytle and Dingley, the driver and mechanic of the Pope-Toledo, were hurried today to Hartford, where the racer has been all the week being overhauled, to drive it back to the course for resumption of practice.

The Pope-Toledo efforts to be restored to the team have kept the racing world stirred up with conflicting stories and rumors of what would be, what would not be, and what could be done ever since last Thursday. On that day Harry S. Leyman, assistant manager of the Pope-Toledo factory, arrived in town and forthwith began a pursuit of Referee Vanderbilt and Chairman Thompson. The reason for his return was given out to have been based on volunteered information from spectators and affidavits at hand tending to prove that there had been other violations of the rules in the matter of outside assistance that were fully as flagrant as the Pope-Toledo being towed by a touring car. Other cars, it was claimed, had been pushed illegally.

All sorts of wild stories found their way into print. It was said that Colonel Pope had declared that he would enter no more cars in eliminating or international races and that the Pope people claimed to have proof of every car chosen for the team and, in fact, of the whole American outfit, having been pushed save the winner. This brought an official denial from Colonel Albert A. Pope, addressed to Chairman Thompson, that he had said any such thing and a statement from representatives of the company that the publication of such wild and untrue stories of its all-around accusation against fellow-competitors was unauthorized and greatly to be deplored.

To all these allegations of possible disqualifications of cars already chosen was added the persistent report that the Haynes people, having made a convincing demonstration of the speed and endurance of their touring car in the eliminating trial, were considering in the interests of extreme sportsmanship and conscientious patriotism withdrawing their car to enable the substitution of a racing car, the Pope-Toledo preferred, so it was said. With a place made vacant on the team either by the withdrawal of the Haynes or the eleventh-hour disqualification of Frank Lawwell and the Frayer-Miller or Walter Christie, both of whom, it was said, having come within the accusing Pope-Toledo evidence, it became a question of who would be named to fill the vacancy. Caillois' claim to it would be that he was in seventh place when the race was called off and so next in the line of succession to Lawwell. Against Caillois, however, stands the fact that his car had stopped and was out of the race. The argument in favor of the Pope-Toledo was that it had completed nine laps, that its violation of the rules was, after all, only technical, that that if all had sinned, then it had run the furthest and best. Behind Caillois in the order of finish came the third Thomas pilot, whose car had completed four rounds and was still running when the race was called. Against this claim, however, is the fact that had Roberts been allowed to finish and had he continued at the rate of his fastest lap he would not have completed the ten rounds of the race until close to an hour after 3 o'clock, the time limit for the use of the course set by the Nassau county supervisors.

To just how much all these protests, affidavits and statements will amount in the end can only be known when the commission takes action on them on Wednesday night, if it really decides to reopen the team selection question in the absence of a protest filed within 24 hours after the race and in the face of the contestants having already drawn for their places in the order of starting.

This much-muddled story, though, had to be told as a part of the history of the 1906 Vanderbilt cup race and that Motor Age readers might be informed of what led up to any action in the matter the commission may take on Wednesday night.

FOREIGNERS ALL HERE

New York, Sept. 30—All the European Vanderbilt cup candidates are on hand and all of them have had trials over the course except Albert Clement and Louis Wagner. The Clement-Bayard pilot was the last one to arrive. He came in by the Provence on Friday. The substitute for

HEADQUARTERS OF VANDERBILT COMMISSION

HARRY PAYNE WHITNEY BECOMING RACE ENTHUSIAST

Hemery at the wheel of the Darracq reached here Thursday, having come by the way of Montreal. Clement will not be able to begin practice until tomorrow and Wagner will not make a circuit in his racing car before Tuesday morning. Until yesterday the course was in none too good shape for speeding. There had been rain which, mingled with the oil, left a treacherous surface. Besides, on the backstretch, notably in the neighborhood of the hairpin turn, there were spots sadly needing resurfacing and mending, which had not yet been reached by the road-menders. A big force of the latter, however, is improving the course greatly and another coating of oil is being put on.

All the racers save the two named have had one or more trials over the course. Tracy, Weilschott, Lancia, Nazzaro, Duray and Jenatzy have been credited with the fastest laps. To Weilschott, the Fiat pilot, the clockers have so far awarded the fastest lap, a circuit in 28 minutes, made on Saturday. The same day Lancia, Jenatzy and Tracy were credited with 29 and Nazzaro with 30. It must be remembered, however, that all this clocking is done with ordinary watches, no attempt being made to split seconds. The following practice reports are given. They are believed to be authentic, although it is stated some of the times reported on the course are incorrect.

Thursday: Shepard, 41½; Jenatzy, 39½; Weilschott, 34.

Friday: Weilschott, 36½; Luttgen, 40½ and 41; Tracy, 47½; Jenatzy, 44½; Duray, 33; Nazzaro and Lancia went over the course in 1 hour 47 minutes in a touring car. Christie passed Krug's once.

Saturday: Cagno, 47 and 41½; Heath, 39½ and 36; Luttgen, 38½; Fabry, 38½ and 34; Duray, 30; Lancia, 31 and 29; Tracy, 31½, 30½ and 29; Nazzaro, 31 and 32; Jenatzy, 30; Weilschott, 31½ and 28; Shepard, 35½. Christie passed Krug's once.

In Saturday's practice a collision occurred whereby Luttgen "sideswiped" with his Mercedes the Itala car piloted by Cagno in passing him at a narrow point of the road beyond the hairpin turn. The wheels locked and the Itala was thrown into the ditch with a broken wheel and front hub and its frame slightly twisted. It is expected, however, that the car can be repaired in time to resume practice early this week.

TIRE MEN OFFER PRIZES

New York, Sept. 29—As an extra inducement to drivers of American cars in the Vanderbilt race Saturday the Diamond Rubber Co. offers $2,500 to the Yankee driver who finishes first, $1,250 for a second, $600 for a third and $400 for a fourth. Every American car in the final is fitted with Diamonds. In addition to this the Diamond people have decided to add three more controls, making eleven in all. Sixty-five mechanics will be used and an officer will be stationed at each control to keep back the crowd which interfered with the operators during the trial. A report has been compiled by the Diamond company on what its tires did in the trial. "The total of all tire trouble, including both winning cars and those which failed to qualify," says the report, "was as follows: One front tire changed on Tracy's Locomobile. Cause, a pinched tube. One rear tire changed on LeBlon's Thomas. Cause, a puncture. One rear tire changed on Harding's Haynes. Cause, a puncture. There were seven nails in the tire removed. One tire changed on Christie's Christie. Cause, a puncture. Two tires changed on Lytle's Pope-Toledo. The first was punctured. The second was torn partially off the rim, following its running flat after a puncture. Two tires were changed on Lawwell's Frayer-Miller, both on account of puncture. One tire was changed on Belden's Frayer-Miller, there being upward of a dozen nails in the tire. The wreck of the Matheson car has by some reports been attributed to tire trouble. Such was not the case. The car skidded onto a high bank and the driver lost control. Striking an obstruction, as the machine was hurled up the declivity, a tire was pulled off the rim. The tire did not blow out nor was it in any manner responsible for the unfortunate accident. Not as a defense of the record the tires made—there is no occasion to present one—but as the basis of a proper appreciation of the conditions the racers and tires encountered, the following facts should be considered: The course of 29 7-10 miles was unquestionably the most severe as regards both turns and road bed ever chosen for a great race. Drivers and all others of experience agree as to this. The road was literally strewn with nails. Repeated punctures on racing and pleasure cars before and after the race were proof of it. At one point 2 pounds of new nails were picked up from the track."

TRACY IN THE LOCOMOBILE AT KRUG'S CORNER

CORNCOBS AS A FUEL POSSIBILITY

Government Puts Two Men To Work at Hoopston, Ill., Investigating Practicability of Using Waste Product From the Fields in the Production of Alcohol

Hoopston, Ill., Oct. 1—Acting under instructions from the agricultural department at Washington, government employes working here have discovered an important commercial factor in the form of a waste product which can be successfully and at small cost manufactured into a staple commodity. The experiments now being prosecuted have proved beyond doubt that the large quantities of corncobs which are hauled out on farm lands each season by corn-canning factories can be converted into alcohol in sufficient quantities to justify the erection of a distilling plant in connection with the cannery.

Acting upon the suggestion of the officers of the Illinois Canning Co. to provide all necessary equipment for carrying on the experiment, the agricultural department, of Washington, sent two expert chemists here, who have been engaged in making chemical deductions. Simple methods of fermentation have been employed and the yield in alcohol shows a strong 11 gallons to the ton of green cobs. The same methods employed in handling the cobs have been applied to the juice extracted from the corn stalk and show there are 6 gallons to the ton.

These experiments, while not exactly in harmony with the previous experiments carried on by the department at Washington, are sufficiently near to denote the possibilities of converting a waste product into a marketable commodity. At different times during the last 25 years the department has conducted experiments along the same line, but with common field corn. These tests show that there are 240 pounds of fermentable substance in a ton of green field corn stalks, which will yield about half their weight in absolute alcohol. In round numbers a ton of stalks will produce 100 pounds of alcohol or 200 pounds of proof spirits. As a gallon of alcohol weighs nearly 7 pounds, there should be 15 gallons of alcohol in a ton of stalks.

It is the generally accepted theory that sweet corn stalks contain a larger percentage of alcohol than the common field corn, although the experiments at the cannery did not prove this to be the case. However, there are other features in connection with a canning establishment which make possible the quantity expected by the department.

Not only are the cobs a waste product, but the irregular and spoiled ears as well. Hand labor is yet employed in husking, and all ears are put in, as the wage scale is based upon a measure. These measures are emptied upon a conveyor and the ears unfit for canning are culled as they go by. These culled ears are also waste. The expense in bringing them to the point where they are culled and cast aside is quite as great as with perfect ears. The addition of the corn on the cob adds further to the possibilities as to the amount of alcohol obtainable from a ton of cobs and will have its influence in bringing the quantity to a greater figure.

The discovery is a very important one, which tends to further increase the list of agricultural products from which alcohol may be obtained. Some idea may be gained of the great waste to the canners by a short review of the output of the canneries of the United States. Statistics show that the average pack of corn for the past 10 years has been 6,094,446 cases. In each case there are 24 pounds of actual sweet corn. It is estimated that there are 650 pounds of corn in a ton as it is hauled in out of the field with the husks on. The remainder is waste. Of this waste 650 are husks and the remaining 750 pounds represent the cobs in a ton. The pack of 1905 was the largest in the history of the business. It amounted to 13,418,665 cases. With these figures it is not a difficult matter to determine the enormous waste that the packer must suffer. Figuring 11 gallons of alcohol to the ton of cobs gives some idea of the amount of alcohol which could be extracted from this waste and converted into a marketable article at small expense.

The converting of this waste into alcohol would mean a better grade of corn at a lower price and set a standard which would be quite generally adhered to, especially by the larger packers. The corn-packing capacity of the United States is equal to 15,000,000 cases. By converting all of the cobs into alcohol there would in all probability be better corn packed, a higher standard raised, fewer chemicals used and a flavor more akin to fresh corn than the present pack. More corn and less "chicken feed" should be the result.

What the cost of attaching a distilling plant to the packing plant would be has not been determined. The actual expense of distilling the cobs should not be greater than 3 cents per gallon. Inasmuch as they are a waste which now requires an outlay to dispose of them a distilling plant under these circumstances would cost less than an individual plant. A molasses plant with a daily capacity of 10,000 gallons is estimated at $40,000, but a plant with a less capacity would in most cases prove better for the canner.

The treasury department has recently delivered several decisions covering similar situations which are of interest in this connection as showing the resources for the manufacture of alcohol which are already in the minds of those who have taken a decided interest in the subject. A distillery at which tomato parings, pea hulls, banana hulls, sugar corn cobs, etc., could be used in the manufacture of distilled spirits must be constructed and operated under the general law which applies to grain and molasses. It is not impossible to remodel a brandy distillery with certain additions made in the nature of a cistern room warehouse. If this can be done there would be no objection to its being used as a fruit brandy distillery during the fruit season and as a distillery for the manufacture of alcohol for denatured purposes during the remainder of the year.

There has been no change in the law relating to the manner in which alcohol may be manufactured. The distillery must be constructed in the manner now prescribed by the law and the regulations. The denatured alcohol law simply provides that alcohol manufactured in the usual manner at registered distilleries may be withdrawn from bond free of tax for denaturing purposes, and may be put upon the market after it has been denatured so that it cannot be used as a beverage or in the manufacture of liquid medicinal prescriptions.

The problem of how to preserve the alcohol in the stalks until such time as they can be handled without interfering with the rush incident to the packing season could be solved by the construction of silos, where the juices could be preserved, or some method of drying looking to the subsequent utilization of the product.

The fact that there are now over 100 articles of manufacture into which the use of alcohol enters makes it all the more important that less waste products of the farm and factory should be converted into a marketable commodity. In addition to these there are the three principles which it provides for in the form of light, heat and power. Already the manufacturer of gasoline engines has made his investigations and experiments looking to the near conversion of the small gasoline engine into one employing alcohol, with as few changes as are possible. The portable engines so much in use on the farm for pumping water, cleaning grain, chopping wood and doing various other farm work can be made to do the work by a few slight changes. And the farmer will find no objection upon the part of the insurance company to his keeping in his barn a can of alcohol, where a can of gasoline would mean the cancelling of his policy.

Another phase of the situation lies in the converting of the corn stalks of the six corn-growing states of the union into alcohol. At the figures given by the department deducted by their experiments, there was over 1,000,000 gallons of alcohol in the crop of 1905 in the state of Iowa alone. Put to use as a motor power it is capable of propelling a car seating seventy people at a speed of 55 miles an hour for nearly 1,000,000 miles. This is not a theory, but has been proven by actual demonstra-

tion. The danger of trolley lines in the downtown thoroughfares of the larger cities has given rise to much speculation as to the ultimate use of cars propelled by alcohol in place of electricity in the more congested portions of the cities. The experiments now being conducted under government control by these expert chemists are expected to point out to interested parties just how much good can be had out of these waste cobs. Naturally, the automobile world should be interested in these investigations.

DUST LAYING TESTS

London, Sept. 20—Quite satisfactory results have been secured in Liverpool through the use of oil sprinkled upon macadam roadways. The surface having the cleanest and whitest appearance was that coated with creosote oil mixed with rosin, while that covered with creosote oil mixed with tallow had the least odor. The surface covered with ordinary petroleum was the first to show the dust. The next in order was a mixture of creosote oil with rosin and tallow, and then the hot creosote oil alone. Creosote oil mixed with pitch, cold creosote oil, and hot creosote oil mixed with a small quantity of pitch gave good results, but the latter gave a bad appearance. The heavy black oil or coal tar waste oil lasted slightly longer than the creosote oil and was much cheaper. Texas crude petroleum gave the most lasting results, and portions of the road heavily coated with this oil showed a somewhat glazed surface formed of oil and dust. From the standpoint of the wear and tear of the road surface the oiling on the whole has proved advantageous; the wear appears to be less; the surface of the road dries more quickly after rain, and the number of loose stones picked up has been reduced.

AIR VICTORY FOR AMERICA

New York, Oct. 2—The Aero Club of America has scored its first victory, according to cable advices from Paris, which announce the victory of Lieutenant Frank P. Lahm, who, with Santos Dumont, represented America in the international balloon race for the James Gordon Bennett trophy. Lahm crossed the channel and traveled 415 miles. C. S. Rolls, the English automobile manufacturer, was in the air for 26½ hours, being the last aeronaut to descend. It is estimated that at least a million people saw the start of the international balloon race, in which sixteen balloons, representing seven countries, took part. Santos Dumont was a favorite because of the fact that his balloon was equipped with a 6-horsepower vertical propeller, so he can raise or lower the air ship without wasting any ballast, a good point when it is considered that the object of the race was to test the endurance of the contestants. France, Germany, Great Britain, Spain, Belgium and Italy were the other countries represented.

BIG CLIMB TAME ONE

Bad Roads Rob Mont Ventoux Affair, in France, of Its Interest, Making the Times Slow

Paris, Sept. 19—The climb up the Mont Ventoux, consisting of a rise of 6,600 feet in less than 13 miles, was accomplished again Saturday and Sunday by the various classes of cars entered for the event. No records of note were broken, which is attributed to the fact that great care was necessary in the contest in view of the state of the road, on which the dust at times was 5 or 6 inches thick, occasioning side slips at sharp corners in case speed was maintained. Mont Ventoux is a hard climb over 13 miles, without a single let-up. It starts at 6 per cent, proceeding to 8, then over a few miles at 11 per cent and several hundred yards of 13 per cent grade, the whole rendered difficult by right-angle and acute turnings where a 20 per cent grade is encountered. Guippione on a Griffon motor cycle covered the ground in 27 minutes and Ladougne in a Motobloc light car in 32 minutes, both these being records in their classes. The second day was windy and threatening, and the big cars and racers were under somewhat of a disadvantage. Colomb in a Rochet-Schneider car made a good ascent in 24 minutes 40 seconds, but this is not a record, for Cagno, in a Fiat, holds it in 19 minutes 30 seconds. A Rochet-Schneider car in the tourist class climbed in 25 minutes 15 seconds and a smaller car of Chantiers de la Buire went up in 26 minutes less a few seconds. None of these is a record. A 100-horsepower Lorraine-Dietrich came to grief at a turning. The meeting was successful and interesting, but more from the point of view of tourist cars than aught else.

The Provence meeting proved to be rather interesting from the tourist car point of view. The attendance was good and there were 148 competitors in the shape of cars and motor cycles. In the speed tests only the Rochet-Schneider car started, the new six-cylinder Bayard-Clement having had an accident before the race, the pump proving defective. The Rochet car covered the 5 kilometers in the Rothschild cup in 2 minutes 11 seconds, not touching the old record made by Colomb in another Rochet machine, of 2 minutes. A Griffon motor cycle ridden by Guippione was close on this time, with 2 minutes 47 seconds, making a record for his class. In the tourist section, Taddioli, in another Rochet-Schneider, covered the 5 kilometers in 2 minutes 36 seconds, again making a record. The classes were all arranged according to the list or selling prices of the machines engaged.

The six-cylinder Bayard-Clement which was to have taken part in the Provence meeting has a motor which has been designed for tourist cars, with six separate cylinders of 2⅝-inch bore and 6⅜-inch stroke. The cylinders are of steel, with moulded copper casing for water circulation. A special syphon is placed between the carbureter and the cylinders to avoid possible interruptions in the supply of mixture. The bearings of the camshafts are mostly cast in the mass. There are three speeds and chain transmission. The motorshaft is hollow. The motor will be fitted to 30 and 50-horsepower cars for next season.

MEANS MUCH TO MICHIGAN

Detroit, Oct. 2—The success attained at the primary election held in Wayne county on the question of adopting the county road system, means much to Michigan. The arrangement provides that the mayor of Detroit and the county clerk appoint three commissioners who take over the principal public thoroughfares leading into Detroit and build them of crushed stone, afterward keeping them in repairs, the state paying $1,000 a mile toward the expense incurred in the building of these roads. The men who will be appointed as commissioners have been selected, but their names will be withheld for about 2 weeks until the appointments are made. It is stated that one will be a business man, one a farmer and one a manufacturer of automobiles, representing the various interests that will be most benefited. These commissioners will have the power to raise a one-half mill tax and on the $350,000,000 tax valuation of the county this will give $175,000. This sum will build 35 miles of road, such as it is proposed to construct, thereby making the sum received from the state $35,000, or a total of $210,000 a year. In 5 years' time this will make over $1,000,000 and will give Wayne county the best roads of any county in the United States. What is known as the river road, the Fort street road, the Michigan avenue road, the Grand river avenue road, Woodward avenue, Gratiot road, Van Dyke road and the Jefferson avenue road, will all be macadamized.

WANTS ITS OWN SHOW

Chicago, Oct. 2—The board of directors of the American Association of Engine & Boat Manufacturers has unanimously and Boat Manufacturers has unanimously decided to reject the proposal of Cochran & Payne to promote a motor boat show in Chicago, the board declaring that the association will hold its independent show. It is stated in a circular sent out "that western manufacturers of engines and boats believe that the date selected at the close of the holiday season by Cochran & Payne is not a suitable one and that the association would better at this time lay the foundation for the boat show business in the interest of the association which they thought would not be desirably brought about by an alliance with Cochran & Payne." The board has arranged with W. C. Anderson to conduct the boat show for the association.

MOTOR AGE

309 Michigan Avenue, Chicago

Published Every Thursday by the Trade Press Company

N. H. Van Sicklen, Manager — Chas. P. Root, Editor

Subscription Two Dollars a Year
Foreign Subscription Four Dollars

The Western News Company of Chicago and Its Branches Supply News dealers

New York Office, 29 West Forty-Second Street
Official Organ of the American Motor League
Entered at the Chicago Postoffice as Second-Class Matter.

AMERICA'S POSITION

JUST BEFORE the Vanderbilt cup race of a year ago it was practically conceded that a foreign car would prove the winner and Americans speculated upon their own chances only as to where the first home-made car would be placed. There is a somewhat different feeling this year, owing to the manner in which home builders have gone about preparing for the contest, so that today, on the eve of the contest, there are strong believers not only in the possibility of this country making a good showing but actually winning the race against the cream of foreign drivers and foreign cars. The fact that the American has actually built a modern racing car, that he has made excellent showing in time in the qualifying event, and that he has had additional experience in building and driving racing cars are responsible for the optimistic feeling that not only exists today but is growing as the day of the race approaches. The final of the 1906 Vanderbilt cup race is to be a hotly-contested affair, not only between the foreigners and Americans but between the foreigners themselves and the Americans as well. Americans are keyed up to fight for American supremacy and the foreigners not only want to take the honors away from this country, but they want to settle a little matter of supremacy between themselves. All of which assures a fiercely-fought contest from beginning to end, with the result that the winner must have a combination of careful driving and good quality of car. It has gone beyond the stage of a purely sporting event; it is a commercial battle between nations. The foreigner cannot afford to be beaten as long as there is an open market for his goods here; the American is out to win because he is persistent in his endeavor to show his own people he not only can build as good cars as the foreigner but even that his wares are better, despite the fact he has had, comparatively speaking, few years of experience in the game. If the American wins he will be encouraged; if he is defeated, he will set his teeth the harder and keep after his foreign rivals. He is out to conquer and conquer he will before he is through. This has always been the policy of the American, and while at times during the history of this country he has seen his plans defeated, the defeat has been only of a temporary nature, which seemed to have an encouraging rather than a discouraging effect. Whatever may be the outcome of the Vanderbilt cup race of 1906 the public may rest assured its makers of motor cars will not be in the least discouraged and that they will lay plans to outdo by honorable methods their business rivals from across the ocean. If a foreign competitor wins the race, America will doff its hat and extend its hand in congratulation—and in the next breath it will start in to prevent another defeat.

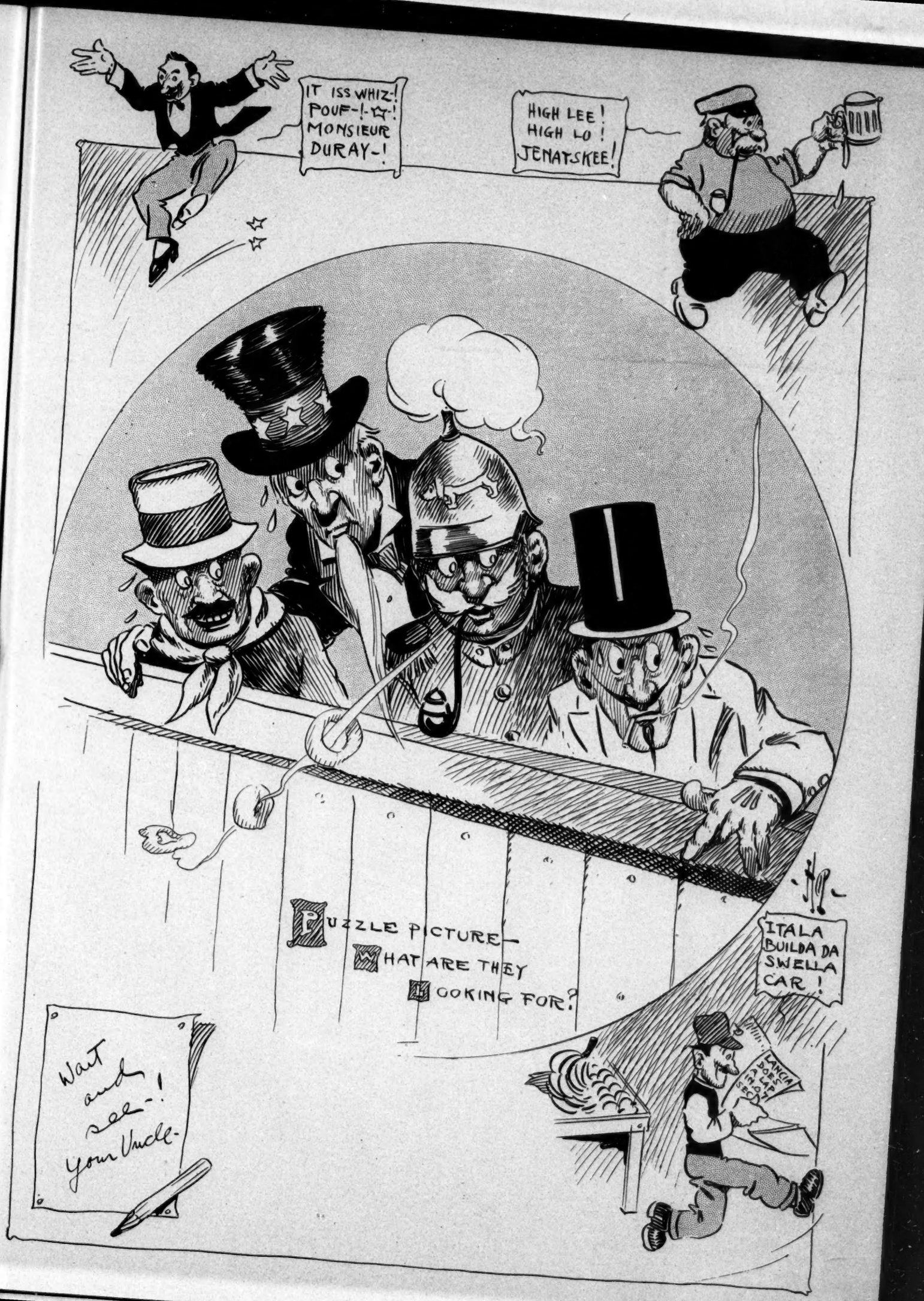
ONE SIDE OVERLOOKED

SO GREAT has been the demand for motor cars to be used almost exclusively for pleasure purposes that the commercial side of the industry has, to a comparatively large extent, been overlooked by a large proportion of the makers, both in this country and abroad. On the other hand, there are some who see a bright future only on the commercial side of the business and they are working along conservative lines in this direction wholly. Demonstrations of the absolute utility of steam and internal combustion motors in the commercial world are being made daily with such completeness that those who cannot see must be those who will not see; yet it may be a case of letting the pioneers work out problems that are to be solved before the world at large shall take up the matter in any degree of earnestness. The maker of pleasure vehicles may take it that as long as the demand for this class of goods maintains there is little use in branching out into experimental work, believing it will be an easy matter to make a sudden change of policy should occasion demand it. As a matter of fact nothing could be farther from the true state of affairs. No matter to what stage of perfection the commercial car may be brought by one maker, another without having performed a lot of experimental work will not be able to jump in and make a success of manufacturing commercial motor cars. The experimental stage must be passed over in any line and in the motor car manufacturing industry as much if not more than most others. The pleasure car manufacturing field is rapidly being filled; with the increase in the factory facilities now being made, together with the additions to the ranks, there will soon be plants enough to supply not only the home market but that abroad as well. When this time has arrived new industries will not cease coming and old makers will not discontinue spreading out, so that a new outlet must be sought for the surplus products of the factories that are in existence today.

EDITOR'S NOTE—In the story of the Chicago parts show in last week's Motor Age the use of the words "reputable makers" was construed by some as a reflection upon exhibitors. Reference was made solely to makers of automobile parts and not to sundry manufacturers. Motor Age intended to convey the impression that the number of makers of parts of national reputation was, comparatively speaking, very small. There was no intention to cast reflection on the business probity of the exhibitors.

WINTER WORK AHEAD

THERE IS a great quantity of important work ahead of the various automobile associations in this country, all of it more or less of a legislative character. By associations is not necessarily meant national bodies, of which there are several. Each automobile organization, whether it is a local club or a state or national organization, can find much to do in the legislative line during the winter that is almost here. The racing season will have ended this week and touring is practically at a standstill, so that individuals and organizations can undoubtedly find some time to devote to securing legislation that will not only be of benefit to themselves and other automobilists but which will be of such general good as to compel the general public to extend to the motorists of the country a vote of gratitude and give a nice pat on the back. It is not enough for the individual motorist to wait for a club to make a move, it is not for a club to wait for a state organization, and it should not be for a state organization to wait for a national body to do something. As a matter of fact a self-appointed committee of three or four can, with some show of enterprise, accomplish quite as much as a whole army. The only requisite is to do something, which, by the way, is the motto that has been adopted by a new motoring organization of Chicago. If the various state legislatures do not hear from the motorists in behalf of sensible speed laws and regulations, good roads and other things that are of benefit to the general public as well as to automobilists, it will be because the individual, the club and the state and national organizations are not sufficiently interested in the welfare of motorists to seek that which might be obtained simply for the asking.


IT ISS WHIZ-!
POUF-!-☆-!
MONSIEUR
DURAY-!
HIGH LEE!
HIGH LO!
JENATSKEE!
PUZZLE PICTURE—
WHAT ARE THEY
LOOKING FOR?
ITALA
BUILDA DA
SWELLA
CAR!
LANCIA
BOESCH
FIAT
SCOTT
Wait
and
see-!
Your Uncle-

PLAN FOR A FUEL TEST

Chicago Dealers and Clubmen Arrange Trial Different from Ordinary for October 18

Chicago, Oct. 2—Determined to wind up in a blaze of glory its first campaign of "doing something," the Chicago Automobile Trade Association has again departed from the ordinary in arranging its plans for its economy test. It promoted a double hill-climb under a handicap system which proved a great success and now its economy test is going to be different from others not only in the formula employed to decide the winner, but also in asking the cars to go a distance instead of seeing how far they can travel on 1 or 2 gallons. The dealers, in arranging for their final efforts, have changed partners, joining forces with the new Chicago Motor Club instead of the Chicago Automobile Club, which was in on the other affairs. As decided by the committee, Joseph F. Gunther, Walter L. Githens and John W. Hayden, the contest will be held October 18, starting in Chicago and finishing in Cedar Lake, Ind., a distance of just about 50 miles. Instead of bothering with outside tanks, as was done at Minneapolis, the promoters will simply fill every tank to overflowing, note the quantity and start the cars from in front of the New Southern hotel, at the corner of Michigan avenue and Thirteenth street. At Crown Point, en route, each car will be officially weighed, then the 6 miles to Cedar Lake will be covered and the tanks refilled. As the quantity poured in will be known it will take only a little bit of pencil work to find out how much gasoline each car consumed on the journey.

Then the formula drawn up by David Beecroft and F. E. Edwards, of the technical committee of the Chicago Motor Club, will be applied. It is a departure from the one used in New York last spring. In the first place, there is no constant employed and division instead of multiplication is used. The merit mark will be arrived at by taking the weight of the car and dividing it by a divisor which represents the quantity of gasoline consumed.

Realizing there is more detail connected with an economy test than there is with a hill-climb or a reliability contest, the committee has decided to limit the size of the field and only fifty cars will be allowed to compete in the contest. Each entrant must nominate an observer. Entries will close at 6 o'clock Saturday, October 13, with Charles P. Root at Motor Age office. The route to be followed runs through South Chicago, Hammond, Hessville, Ross, Merrillsville and Crown Point over roads that are macadamized and as near a boulevard as one could expect in the country. The highways are level most of the way, although becoming slightly rolling near Cedar Lake, the end of the test.

The economy part of the affair is not the only thing that day, for the dealers and club men are taking elaborate pains to make it a social success also by putting on a banquet and dance in the evening. In fact, it will be a fall festival affair. As there is a 5-hour time limit on the contest all the cars will have to be at Cedar Lake by 6 o'clock at the latest, just in time for the banquet. The summer resort hotel on the west side of the lake will be gayly decked for the occasion and the feast provided will be well worth the ride. After the spread comes the dance and then those who do not wish to drive home that night can find sleeping accommodations at the hotel. Just as much care is being taken to make the evening part of the program a success as is being devoted to the contest end of it. Chairman Gunther is making his plans to care for at least 200 at the banquet. The affair comes late in the fall, but the weather ought to be just crisp enough to make motoring enjoyable.

BOSTON'S GYMKHANA

Boston, Oct. 1—The second annual gymkhana of the Worcester Automobile Club was held Friday at the Worcester oval and proved a great success. Representative motorists gathered there from all over Massachusetts. President Coghlin was awarded the cup for the best decorated car. Miss C. E. Gardner, of Southboro, was the star driver and carried off the cup for fine work. Going at the rate of 15 miles an hour, Miss Gardner brought her car to a stop after the signal had been given within a distance of 16 feet. Mr. Hawkins, of the Grout agency in Boston, carried off several prizes and his work in the various stunts was highly applauded by the onlookers. Great credit is due President Coghlin and the directors of the Worcester Automobile Club for the successful manner in which this meeting was conducted. The officials of the events at the oval were: Referee, Harry W. Smith; judges, President Mather of the Rhode Island Automobile Club, President Lee of the Massachusetts Automobile Club, and Secretary Fortescue of the Bay State Automobile Club; timers, F. L. Murdock, B. A. Coates and Albert H. Inman; starter, James W. Murphy; clerks of the course, O. M. Savels, R. E. Wesson, Jr., and Melvin E. Dixon; scorer, W. H. Blodget, Jr.

ORDERS TIRES FOR CADILLACS

Detroit, Oct. 1—Last week the contract was again let for the tire equipment of the Cadillac Motor Car Co. This is claimed to be the largest single contract of its kind made by any automobile manufacturing company in the world. Every Cadillac car for 1907 will be equipped with the Hartford universal rim, taking either Dunlop or clincher type tires, which will comprise its exclusive equipment. This is the third consecutive year that this big mid-western factory has contracted its pneumatic tires through these channels.

CRY FROM THE GERMAN

New Automobile Taxes Have Hurt Trade and Makers Now Seek an Export Business

Berlin, Sept. 22—As a natural consequence of the bad condition of the home trade, the German automobile industry is, more than ever, investigating the best manner of raising its output by increasing its export business. Germany is not satisfied with 1906 as a trade year in automobiles and no matter what good opinions one may wish to have here on the new automobile taxes, it is a fact that it has injured, and severely so, the sale of machines, which up to recently had been increasing in a most satisfactory manner, especially as regards the large-powered cars. The buying capacity of the German and his willingness to spend large sums of money is a great deal less, for instance, than the American or Frenchman. An automobile penalty law, even its mildest form, will have a still more disastrous effect on the young German industry than even the automobile tax law, but a penalty law will be voted in some form or another, as is certain from the tone of the debates at the reichstag. The German Automobile Association may avoid the application of the law for a short time, but its application is thought to be inevitable in the fatherland. Thus German makers are casting around for an increased export trade so the trade will avoid ruin.

They see two ways of getting some lasting good, the first thing being to protect the German industry against foreign competition at home and then to try and export German products to foreign countries. There is one thing, however, which prevents Germany from imposing a too heavy import tax and that is on account of the weak buying capacity of the public. An import tax of large proportions means high prices at home and this would be disastrous just now. Thus Germans feel particularly sore against the export and import conditions of the United States. They see that the United States imposes a 45 per cent ad valorem duty on motor cars amounting, in a car worth $2,500, to $900. On the other hand, cars imported into Germany from the states, pay $4 per kilos, amounting to only $40 on a car weighing 2,200 pounds. Thus there is a difference of $860 in the tax imposed.

The same thing is true of machine tools, tires and motor car accessories. A quantity of German tires imported into the states would, if worth $1,030, pay $309 duty and the same value from the states pay $25.60 on entry into Germany. The United States, although thought to be a promising field for German imports, is thus closed to German trade and the German Daimler Co. is the only firm able to do any export trade to the states. The feeling in Germany is such that the matter

is going to be brought to a head in a combined demand to the government, by the Association of German Motor Car Constructors, to the effect that the matter be brought up for discussion in the negotiations now under way between the German trade committee and the government of the United States. That the government can be reasoned with was recently demonstrated when the Imperial Automobile Club succeeded in inducing the chancellor to order that the restrictions against tourists should not be so strictly enforced. Germany was in a turmoil over this trouble and the government was quick to see the justice back of the complaints. It got so tourists actually were afraid to cross the frontier and the French papers made lots of capital out of the incident. Americans, too, were involved in the rumpus. The club, however, used its influence and the screws were loosened.

GLIDDEN MEDALS READY

New York, Oct. 2—The medals for the clean score men in the Glidden tour will be distributed Friday by Charles J. Glidden, at the Waldorf-Astoria, to the drivers or their representatives who are to receive them. The medal is a massive silver one with very simple but beautiful lines. It contains on the obverse a reproduction of the Glidden trophy and the words "Glidden trophy." On the reverse the medal contains in addition to the name of the driver the following inscription: "Perfect score automobile touring contest for Glidden trophy, 1906, conducted by American Automobile Association." There are twelve of these medals. Mr. Glidden's offer included the twelve clean score men other than Percy Pierce, who does not receive one, inasmuch as he retains the custody of the trophy itself for another year, under the ruling of the commission. Mr. Glidden selected the date and place for presenting the medals in order that he could reach most of the Glidden drivers at the same time. Nearly all of these will be in New York for the Vanderbilt race, and it will be convenient for them to meet Mr. Glidden at that time and be presented with the medals. Mr. Glidden will be present at the Vanderbilt race and will remain in New York city for a day or two.

LONG TIRE TEST

New York, Oct. 1—F. W. Belcher, of the Fisk Tire Co., is superintending an arrangement whereby a Pope-Toledo, type X11, equipped with Fisk tires, will be run continuously between New York and Boston. There are to be three drivers, so that they can alternate with each other, and the run will be made night and day for 2 weeks, and possibly for an entire month, from New York to Boston and from Boston to New York. This will be one of the most unique tests ever attempted and ought to show just what tires will stand in a long and continuous drive such as the one contemplated.

STUDY ROADS IN CARS

Pennsylvania Motor Federation Gives Prominent Politicians a Good Object Lesson

Pittsburg, Pa., Oct. 1—The Pennsylvania Motor Federation has taken an active step in the cause of good roads by taking a party of men prominent in political and business life for a run over the Philadelphia-Pittsburg turnpike. Saturday morning last four cars left the club house of the Automobile Club of Pittsburg. The cars were furnished by George T. Turner, president of the club; Edward Kneeland, Frank Saupp and Dr. John A. Hawkins, and, with one exception, were driven by the owners. At Greensburg seven more cars joined the party. These were owned by George F. Huff, Henry Coulter and John Johnson, of Greensburg; J. S. Hitchman and Edward Hitchman, of Mount Pleasant; A. C. Overholt and J. D. Hill, Jr., of Scottdale. At Youngstown, 10 miles further east, three more cars from Latrobe with a full quota of passengers were in waiting. These were furnished by M. W. Saxman, Captain James C. Peters and Dr. St. Clair, of Latrobe. The weather was fine and Bedford was reached by the majority of the party in time for supper. A small-sized good roads meeting was held on the hotel porch, followed by an experience meeting which continued until the wee small hours.

An early start was planned for Sunday morning, but owing to a heavy rain, which lasted all night, there were but few starters and the Pittsburg cars were the only ones that ran through to Chambersburg, reaching there for a 1 o'clock dinner. Shortly after their arrival the Philadelphia delegation, which had spent the previous night at York, pulled in. In that party was Robert W. Hunter, state highway commissioner of Pennsylvania. He joined the Pittsburg party and the return trip was started at 3 o'clock. The trip was free of accidents and aside from the weather Sunday was satisfactory in every way. Should it have no effect whatever on the bill which will be introduced at the next meeting of the legislature by the federation, providing for the improvement of this road, it will prove a decided benefit to the good roads cause.

A number of road commissioners and supervisors were in the Westmoreland county party. These thoroughly enjoyed the trip, but the frequent contact of their heads with the tops of the cars was the best argument that could have been introduced against the water breakers and the good roads enthusiasts have every reason to believe that they will be eliminated on many of their roads. The good roads cause has a strong advocate in Colonel George F. Huff, of Greensburg. He is a large property holder in Westmoreland county and during the past 2 years has worked out his road tax by the improvement of 4 miles of the pike leading into Greensburg from the east. This section was formerly poorly drained and always in bad condition. The roadbed had been beaten down and the stone scattered. This was drawn to the center, a heavy top dressing put on and the road is now all that could be desired. This was done at a cost of $1,000 per mile.

The west side of Laurel Ridge, a stretch of 5 miles just east of Ligonier, has for many years been in horrible condition, perhaps the worst stretch of road in Pennsylvania. When the trip was planned Colonel Huff secured the permission of the road supervisors to temporarily improve this section at his own expense, and a gang of twenty-five laborers were put to work for a week, part of the time under his personal supervision. Holes, many of them 2 and 3 feet deep, were filled with rocks and earth, the drainage gutters cleaned out, many old telephone poles lying by the road and keeping the water on the surface of the roadway were removed, and this stretch of road, at a comparatively small cost, put in such shape that it is now perhaps the best of the mountain grades between Pittsburg and Bedford. Enthusiasm reached such a point at Ligonier that arrangements were made to raise the money there to pay for this work instead of allowing Colonel Huff to do so. Taking it all in all, the trip was carried out as planned and will do much good.

NEW CLUB HOUSE ASSURED

Chicago, Oct. 3—Contracts have been let by the Chicago Automobile Club for its new home at 15 Plymouth court and on Saturday the work of demolishing the old buildings which now occupy the property will start. A month from now, around Thanksgiving, the cornerstone will be laid with elaborate ceremonies and in 6 months the club hopes to take possession. The house will be five stories high, 70 by 100 feet, and will be of quaint design, the architects being Marshall & Fox. The main floor will be the entrance to the garage, which will be on three floors, reached by an elevator. On the second floor will be the living and lounging rooms, while on the third will be the restaurant and cafe. The fourth and fifth floors will be given up to sleeping apartments, while in the basement will be located the old English grill room and bowling alleys.

FAILURE IN CHICAGO

Chicago, Oct. 3—Henry Hiestand has been appointed receiver for George A. Crane & Co., the local representatives of the Knox Automobile Co., Mr. Crane yesterday having filed a voluntary petition in bankruptcy, seeking relief from debts aggregating $71,512, the assets being scheduled at $2,719. Mr. Hiestand took charge today and is investigating the affair. He is not prepared to make any statement regarding the affair.

LEGAL LIGHTS AND SIDE LIGHTS

WORK FOR INDIANA HOUSE

The next Indiana legislature, which meets early in January, promises to be a clearing house for automobile grievances, for everyone that has a kick coming, one way or the other, is saving it up for that august body. In 1905 the legislature passed an automobile law that the lawmakers thought was absolutely perfect. Since then they have been hearing things from both sides and there will either be another law practically new, or there will be a fight on the floors of the two houses. Automobile owners will make a desperate effort to have that part of the law repealed that confers on municipal cities the right to mulct a yearly license in addition to the state registration. In Indianapolis the annual fee is $3, in New Albany $10 and in other cities all that can be obtained. An effort will also be made to have all toll roads abolished, on some of which the toll for automobiles is 5 cents a mile and for buggies less than 3 cents, where it is collected at all. On the other hand various officials will try to have that part of the law requiring the displaying of numbers made stronger and the rural element will try to have the speed law changed, making a maximum of 15 miles an hour on country roads. Owners are well satisfied with the present speed law, for they realize that if anything along this line were attempted by them it would provoke a bitter fight from the rural members.

FEDERATION PLANS

The Pennsylvania Motor Federation will, at the coming meeting of the Pennsylvania legislature, introduce two bills of interest to every motor car user in the state. The first will be a new automobile law in which the federation hopes to have users of motor cars granted all the rights accorded drivers of horse-drawn vehicles. "We wish slightly increased speed limits as have become safe and proper. We wish recognition granted licenses issued by other states and to have the enforcement of the law placed upon such a basis as to eliminate the opportunity for 'graft' that has made the present law a burden in some sections," says the federation in a circular. "The second bill will provide for the improvement and rebuilding by the state of such portions of the old Philadelphia-Pittsburg turnpike as are not at present properly maintained by turnpike companies. To some of you who do no touring or do not live in sections of the state through which this road passes this measure may not appeal strongly, but it should have the hearty support of every voter in the state whether a motor car owner or not. The improvement of this historic roadway will be an important milestone in the good roads movement and will be felt beyond the borders of Pennsylvania. What we ask of you is this: Do all in your power to foster a friendly feeling toward the motor car. Take out in your car your members of the legislature or any men of influence or prominence in your section, and do it now; don't wait until winter has come. Show them how slow 10 miles per hour really is. Show them how readily the car is controlled and how easily stopped when going 20 miles per hour or faster. When our bills are introduced we will ask you to write a personal letter to your member of the legislature urging his support. Ten thousand votes count for something in Pennsylvania, and if what we ask is fair and reasonable we can get it, but we must stand together and ask; that is where the Pennsylvania Motor Federation comes in. The annual dues of the federation are $1 per member."

IS THE DRIVER LIABLE?

A case that will test the liability of motorists for runaways in the state of Missouri is to be appealed to the supreme court of the state, according to the present intention of E. A. Bennett, of Kansas City, Mo., guardian of Charles R. Bennett, against whom the suit was brought. The younger Bennett is at present in the Philippines. The suit should establish whether the contention of Bennett, which is sustained by counsel of the Kansas City Automobile Club, is to be upheld. According to this view, the Missouri law licenses the car and not the driver and no action may be brought against a person driving a car duly licensed on the plea that the driver is not the holder of the license. It was on the view of the court that it is the driver who is licensed, and not the machine, that judgment was entered in this case.

The history of the case is this: Charles R. Bennett was driving an Oldsmobile runabout on the streets of Butler, Mo., July 6, 1905. The car belonged to E. A. Bennett and Dr. E. G. Zey. While driving, the lad met J. L. Ghere, a farmer, on one of the streets. He approached the farmer very slowly and stopped some 90 feet before the latter came up. The stop was made at a street crossing and the boy turned out of the street and stopped on the cross street. Ghere came up with his horse apparently under control until he reached the cross street, when he turned down the cross street. The horse ran away and threw him out of the vehicle. His leg was broken by the fall from the wagon.

Both the Bennetts and Dr. Zey were joined as defendants, but a demurrer as to the elder Bennett and Dr. Zey was sustained. E. A. Bennett was appointed the boy's guardian and the case was tried as against the lad. A change of venue was taken to Harrisonville, Mo., where the sentiment against motorists is rabid. This is the town which the Kansas City Automobile Club eliminated from the route of its endurance run because of the hostility of officials and residents.

In his instructions to the jury, the court held that the boy was operating the car in violation of the state law, as he had no license and therefore no right to the highway. The license was issued to the elder Bennett and Dr. Zey. The jury found for Ghere to the amount of $1,250.

As the driver of the car, according to the evidence presented in court, used more than ordinary care to avoid an accident, giving up the entire road to the horse, it seems unlikely that such a verdict, in the face of the common interpretation of the law regarding licenses, will stand. Automobile clubs in Missouri may decide to aid in fighting out the matter.

MEANS BUSINESS NOW

Despite the fact that a few months ago the Pennsylvania supreme court decided that the city of Philadelphia had a legal right to insist on the licensing of local automobilists, the police authorities have not pressed the matter, Director of Public Safety Potter evidently holding that, in view of the fact that all local motor car drivers were compelled to buy state licenses, it would be an imposition to force them to "come up double." Unfortunately for quaker city automobilists, however, a political cataclysm a fortnight ago brought with it the resignation of Director Potter, and his successor, Robert J. McKenty, now announces that he will carry out the law to the letter. He asserts that but 25 per cent of the automobiles owned and operated in Philadelphia are equipped with a city tag—which is not far from the truth. He gives local owners until October 15 to get into line, after which date all derelictions will be punished to the limit allowed by the law.

CAUGHT IN OWN TRAP

The automobile trappers of Montgomery county, Pa., play no favorites. Last Saturday they gathered into their net no less a personage than Captain John C. Groome, commander of the state constabulary, who was charged with having negotiated 825 yards of sand-papered down-hill road in 52 seconds. The captain made no defense and "dug" for the $15 fine plus $3.93 costs, remarking that he guessed he was running a little too fast when the officers timed him for his scorch.

RUNNING A CUP RACE NO EASY TASK

FEW persons of the many who go down to Long Island to witness the Vanderbilt cup race have probably stopped to consider what it means to manage a 300-mile road race, controlling the exclusive use of a 30-mile stretch of public highway for more than 6 hours of the day. The management of such an event as the international competition is a stupendous undertaking, requiring months of preparation, the employment of nearly 1,000 men, and the expenditure of thousands of dollars. The greatest difficulty in the successful conduct of a big automobile road contest in this country is the inability to guard the course properly, says the New York Times. In France the government has always delegated a sufficient number of troops to patrol the course, and the presence of one soldier carrying his gun with bayonet attached does more to restrain the populace from surging upon the course than half a hundred local constables. The Brescia road race this year in Italy was abandoned by the Automobile Club of Italy when the government refused to allow the use of its troops to patrol the course. In view of these facts, no little praise is due both to the Vanderbilt cup commission for its managerial ability and the thousands of sight-seers for the reasonable degree of restraint in keeping the course clear. To be sure, complaints have arisen in every race that the crowd, particularly at those places where the racing cars present the most spectacular appearance in rounding the sharp turns, is not always as careful of its own safety or that of the competing drivers as might be the case. Nevertheless, in the last 2 years that the race has been held on Long Island, as well as in the recent eliminating race, no spectator has been injured by a racing car, the few accidents that have occurred being confined to the contestants.

The proper policing of the course, while it is the most difficult problem, is only one of several necessary things, all of which must work in harmony to make the race a complete success. For Saturday's race over 600 men will be distributed all over the course, acting either as flagmen or special deputies. The patrolling of the course will really begin on Friday night by the motor cycle corps. Over twenty motor cyclists will ride over the course all night, keeping a sharp lookout for any obstructions that may have been thrown maliciously upon the road. Men will also be on duty all night at the different telephone stations around the course so that word of any unusual occurrence may be sent at once to the officials at the grandstand, some of whom will be on duty throughout the night, ready to receive word and send aid at a moment's notice if needed. At 4 o'clock in the morning the flagmen and deputies will be in their places and at 5 o'clock the course will be closed to all traffic.

The flagmen will form a continuous chain around the course. Every flagman will be in sight of two other flagmen, so that flag signals may be communicated quickly to the telephone stations. Each flagman has two flags, a red one and a yellow one. The red one means danger for the populace lining the road, informing them that a car is coming, while to the driver it means go ahead. The yellow flag is a symbol of danger for the automobile, meaning slow up, but this is seldom used, except after the race is called off, when it warns the cars still on the course that they must slacken speed. These flagmen are divided into squads, each in charge of a captain.

The deputies are also distributed over the entire course, the largest number being at the turns, where the crowd is likely to be greatest. They wear an official badge upon their caps, and they are required to assist the flagmen in keeping the roads clear. The deputies are under the immediate supervision of Sheriff Gildersleeve, of Nassau county, as the course is entirely within that county. The deputies have the power to arrest any persons creating disorder or acting in such a manner as to endanger the safety of the spectators or the contestants.

During the running of the race there is also a special motor cycle patrol of about fifty men riding constantly from station to station. Should an accident occur at a point between the telephone stations, the motor cyclist sends word to the nearest ambulance station, for ten or a dozen ambulances are distributed at various points, thus permitting of medical attendance with the least possible delay whenever needed. In order to keep in touch with every item of importance on the course an elaborate telephone system has been installed. This has been done under the personal supervision of A. R. Pardington, of the Vanderbilt cup commission.

The timing of the race is done by the twenty members of the New York Timers' Club, half a dozen of whom are located in the timers' box on the official stand, while one man and an assistant are at each end of the five-mile stations. The official time of each car is caught the instant it passes the starting line in front of the grandstand, and so quickly are the computations made that within a few seconds the time for the lap and the total elapsed time are announced to the public. The exact positions of the cars during every lap of the race are thus known immediately.

The grandstand officials, from 5 to 6 o'clock in the morning, are as busy as anyone else on the course. The grandstand has 304 boxes, each holding 5 persons, and

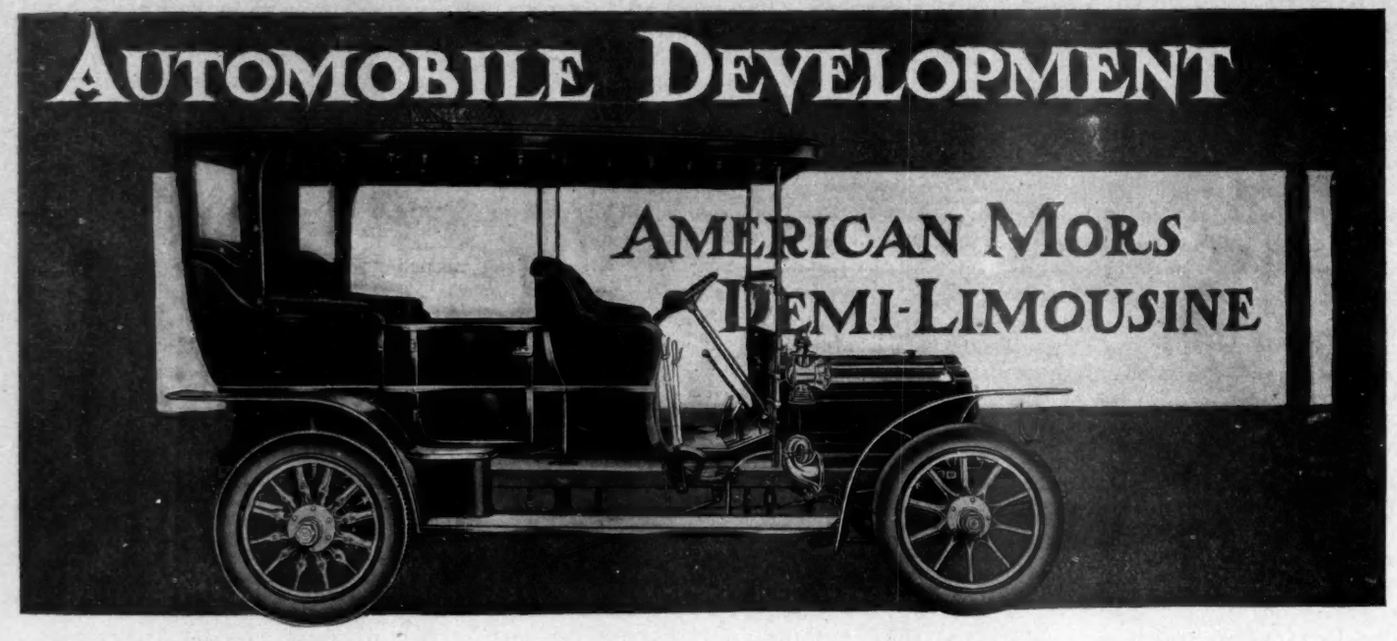
there are 600 seats, making a seating capacity of 2,100 persons, and practically all of them are in their places before the race starts. In addition there are fifty parking spaces adjoining the stand, and the spectators in the cars will probably number 300 more. A small army of ushers is needed to show the people their proper places quickly. Referee W. K. Vanderbilt, Jr., and the leading members of the racing board see to it that the road at the starting point is kept free from intruders, while, as an additional protection at this crowded center, from ten to twenty Pinkerton detectives will be stationed, some being on duty back of the grandstand, where probably a thousand automobiles will be parked in the large field.

In addition to these elaborate arrangements to insure the success of the race, a large number of men are employed for more than a month previous to the contest in repairing the road, oiling it, and acting as flagmen every morning during the practice speed trials. These flagmen during the practice hours, from 5 to 7 o'clock, are placed at all of the turns. The racing board, which has permanent quarters at the Garden City hotel, receives reports from its different sub-committees daily, and a careful inspection of the course is made every day. The board employs two or three special clerks to attend to the correspondence and other details. A small cottage on the course near the grandstand has been hired by the cup commission for the use of its members and employes when engaged in overseeing the work on the course. Meals and sleeping accommodations are provided for those who wish to spend the night at the cottage.

For road repairs alone the commission expends several thousand dollars, and before the start of the big race more than a dozen tank cars of crude oil will have been used in oiling every foot of the course. This is done twice, once before the eliminating race and then again before the big cup event.

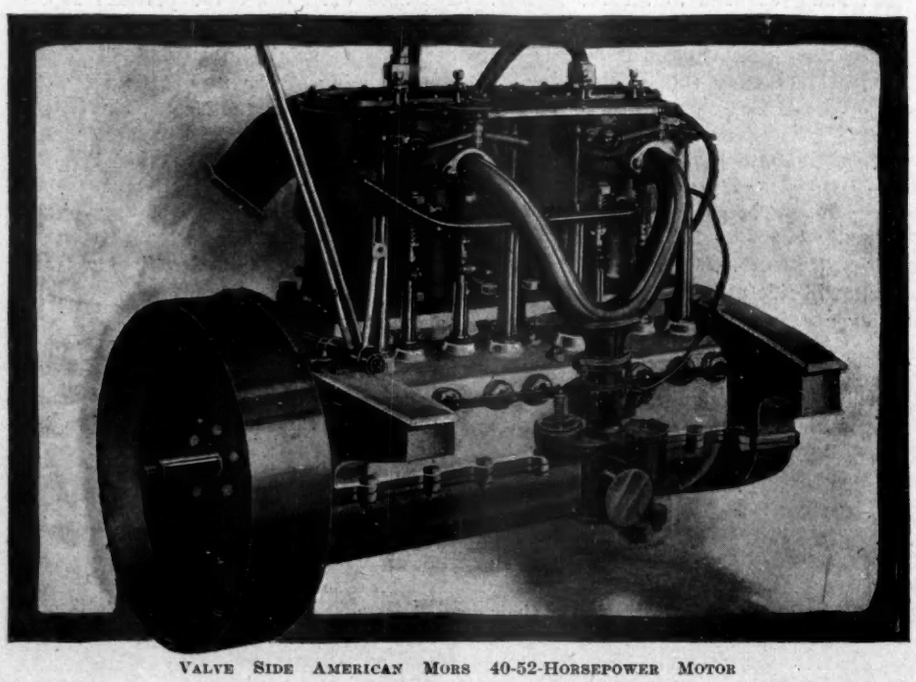
The grand prix race in France last June, it is stated, cost the Automobile Club of France over $70,000. The Vanderbilt cup race will not be quite so expensive, but fully $40,000 will be spent by the commission. More than half of this sum is received in entry fees from the competing cars. The entry fee this year was raised from $500 to $1,000. Fifteen American cars were entered and thirteen foreign cars, giving a total of $28,000 in entry fees alone. The greater part of the balance comes from the grandstand receipts. Of course sleeping accommodations at the course are scarce and one of the unique sights is the tent of the New York Motor Club, which is 40 by 60 feet and will accommodate 100 people in cots. Several out-of-town clubs have been invited to participate in the use of this tent, including the Buffalo Automobile Club.

AUTOMOBILE DEVELOPMENT

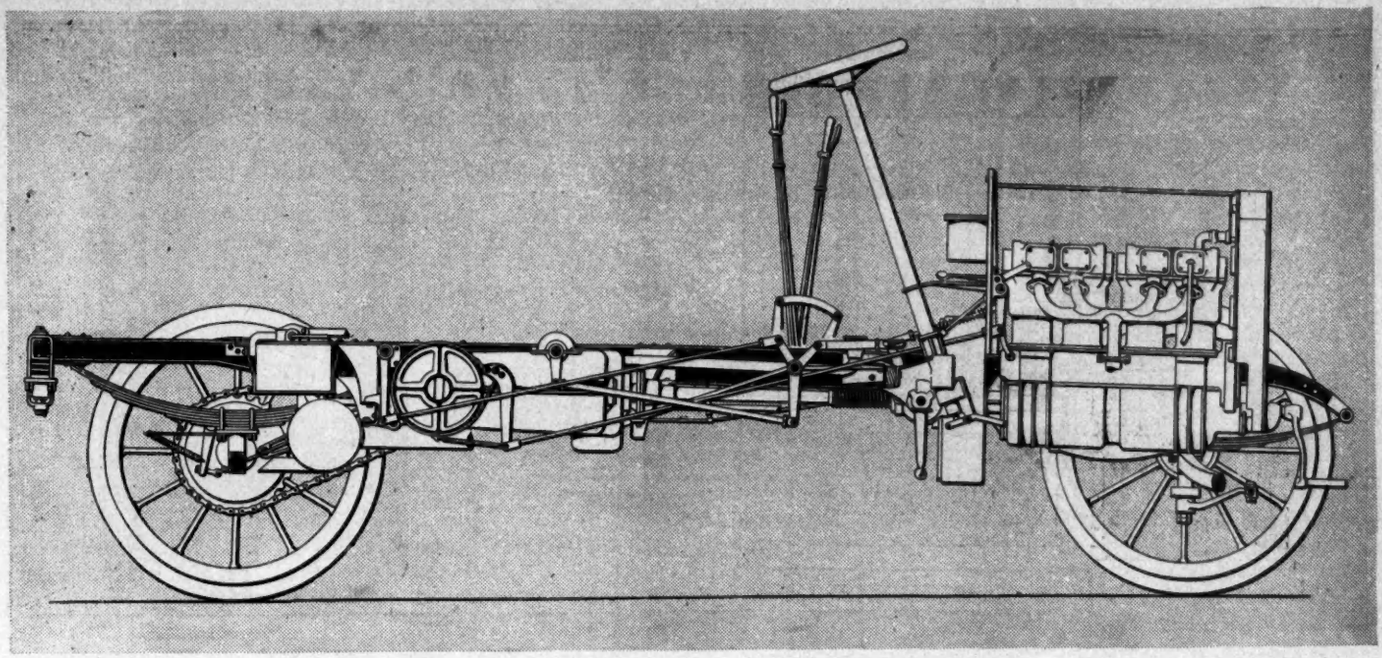


ONE year ago a considerably flurry was occasioned in motordom by the announcement that the St. Louis Car Co., St. Louis, Mo., for years associated with street car construction, had secured patent privileges to build in America the Mors cars and that its first machines would be exhibited to the public at the New York show. Rumors of immense manufacturing facilities, best material procurable, latest French Mors design and many others were rife and the display of the company in the Astor hotel during the week of the New York shows attracted general attention. As any concern entering the motor car field cannot produce in large numbers the first season, the St. Louis firm proved no exception, but its plans for the 1907 trade evidence unusual preparations and pleasure cars in large numbers will be produced. Right here it will eradicate any misconceptions from the minds of those who have followed closely the make of the American Mors in the Missouri metropolis to state that the present name of the company is as given above, and that the Kobusch Automobile Co., which was the specific name of the department of the St. Louis Car Co. under which the motor cars were being built, has now been dropped. The company has for the approaching season three models: One 14-18-horsepower chassis, another with a 24-32-horsepower rating and the third with a 40-52-horsepower motor. The second one is referred to in these pages, but in several places attention is directed to slight differences in the make of the 14-18 and 40-52 as compared with the 24-32.

The wheelbase of this car is 106 inches. The wheels are 36 inches in diameter and fitted with 4½-inch tires. Each front wheel runs on two rows of ball bearings of the annular or, as more commonly known, the Hess-Bright type. The front wheel stub axle pivots in a heavy forged Elliott steering knuckle, which is integral with the axle. It is cupped at the ends to receive large bearings, the upper or end thrust one of which is a ball bearing. The stationary front axle itself is of slightly curved rectangular cross section, 1½ by 1¾ inches; is curved downwardly in the middle, and also forwardly, and is made of a nickel steel. The tread is 56½ inches. The steering gear, of the worm and sector device, has longitudinal adjustment for wear and is contained within a two-part, separable bronze casing, with which are formed integral arms, whereby it is supported both upon the side bar of the main frame and upon a cross bar. It connects with the right steering knuckle by a connecting rod with spring-backed ball joints, the drag link between the two steering knuckles being ahead of the axle. The stationary rear axle, the final drive being to each wheel individually by chain, is of similar section to the front, but 1½ by 2 inches. It is dropped 2½ inches directly inside the spring brackets. Each rear wheel runs upon two rows of annular ball bearings. The front springs are semi-elliptical, each approximately 38 inches long, 2 inches wide and of eight leaves. The rear suspension, a platform system, requires two side springs 38 inches long and an inverted semi-elliptical cross rear spring, of the same length. This is fixed to the center of the rear of the main frame, but is connected at each end with the rear ends of the side springs in a double ball and socket fashion. Instead of a double shackle which connects, but does not space, the spring ends, there is a solid forging with a yoke at each end. In the upper yoke is the end of the cross spring and in the lower one the end of the side spring. Each spring end is retained by a ball-end bolt and socket, which allows a universal joint action between the



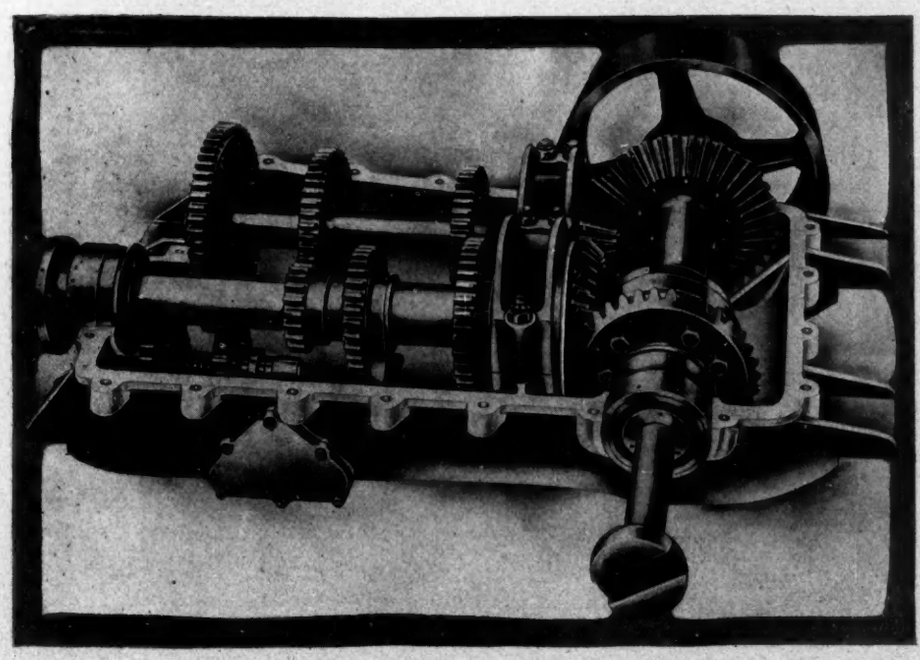
VALVE SIDE AMERICAN MORS 40-52-HORSEPOWER MOTOR



SIDE ELEVATION OF 24-32-HORSEPOWER MORS CHASSIS WITH REAR AXLE IN SECTION

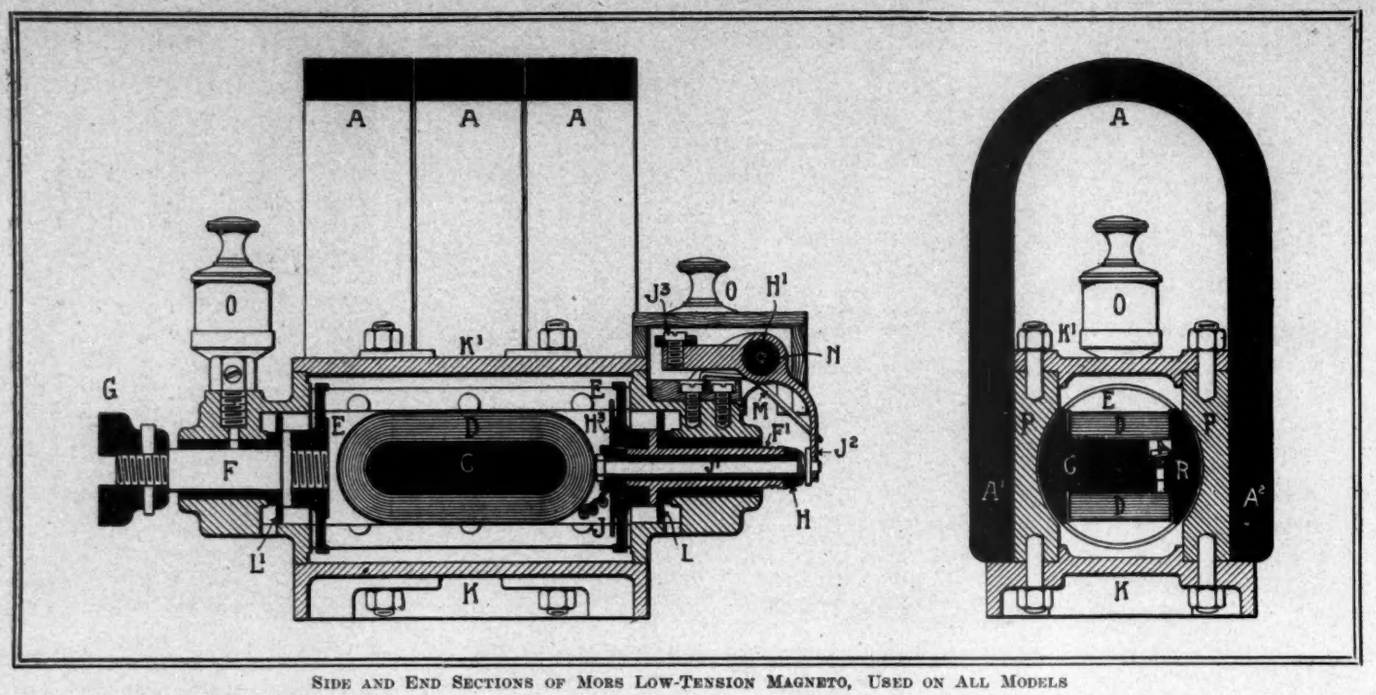
two springs without altering their correct distance apart. The car frame, a typical pressed steel one with two side bars 4 inches deep at the center and 1¾ inches wide, has side pieces tapering in the approved fashion. There is a forged and bent I-section cross bar under the radiator, and three other pressed steel cross bars of channel section, two of which are dropped in the middle to form support for the transmission gear case. At the rear the frame ends with square corners and a cross bar of the same channel section, braced at the corners with large, open, triangular plates. Each intermediate cross bar is braced at its intersection with the side bars by integral gusset plates.

The four-cylinder, vertical motor is of 108 by 150 millimeter bore and stroke, which translates into 4¼ and 5⅝ inches. It is typical in general design but peculiar in construction. The cylinders are cast separately but with the cylinder heads integral. Each is then fitted with an aluminum waterjacket which has a tight-packed joint against the head, an intermediate shoulder joint at the lower termination of the waterjacket, and a base portion bolted to the crankcase. The waterjacket around the head and valve chambers is integral with the cylinder casting. The aluminum waterjacket and cylinder base portions are cast in pairs. Inlet and exhaust valves are on opposite sides and both sets are mechanically operated from camshafts, the inlets being on the right and the exhausts on the left side. The crankcase is of aluminum, with integrally cast arms, whereby it is supported directly from the mainframe of the car, but is different from ordinary practice in that it is in a single piece, with the only openings in the ends. The crankshaft is inserted through these openings and has the usual main end bearings, a central bearing and an extension front end bearing outside of the cam gear. All of these bearings are bushed with Parsons white bronze, in brass shells, which are locked against turning by set screws. The cam gears are at the front and are enclosed in an extension and removable aluminum casing. They are of phosphor bronze and fiber. The two camshafts run substantially in the crankcase, but each is covered by a semi-cylindrical casing that bolts to the side of the crank casing. The camshaft construction is unusual, each camshaft being of heavy steel tubing. To this each cam is fixed by two keys, which are pinned. In the case of the exhaust valve cams there is provision made for their sliding, under the control of a hand lever at the front of the car near the radiator. The cams have two faces so that by the sliding arrangement the lift of the valves may be changed to leave them partially open at the time the inlet valves open.



SELECTIVE GEARSET OF AMERICAN MORS MOTOR CARS

The carbureter is of the float-feed, A, aspirating nozzle type. The aspirating nozzle B is within a vertical cylindrical mixing chamber C, at the bottom of which, at one side, is a lateral opening D for the initial entrance of air. This entrance is controlled by a rotary throttle E, which allows the air opening to be set at any desired area. Above the nozzle is another side air entrance F, through which an auxiliary air supply is received via a poppet valve G, under regulatable spring tension H for automatically securing correct fuel value at high speeds. In the upper end C1 of the cylindrical mixing chamber is a butterfly throttle valve. The whole mixing chamber is waterjacketed, that a

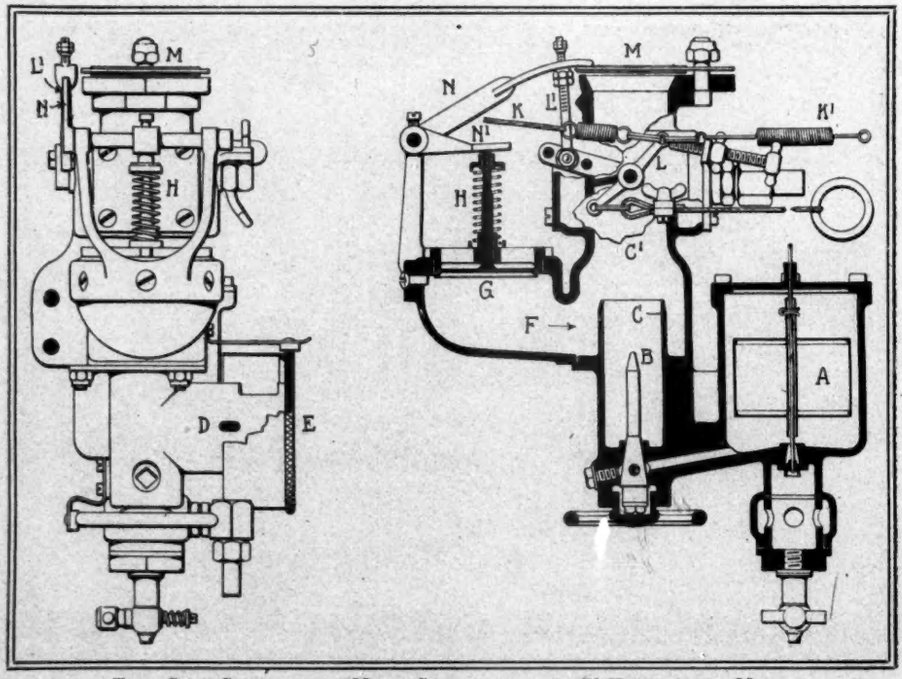


SIDE AND END SECTIONS OF MORS LOW-TENSION MAGNETO, USED ON ALL MODELS

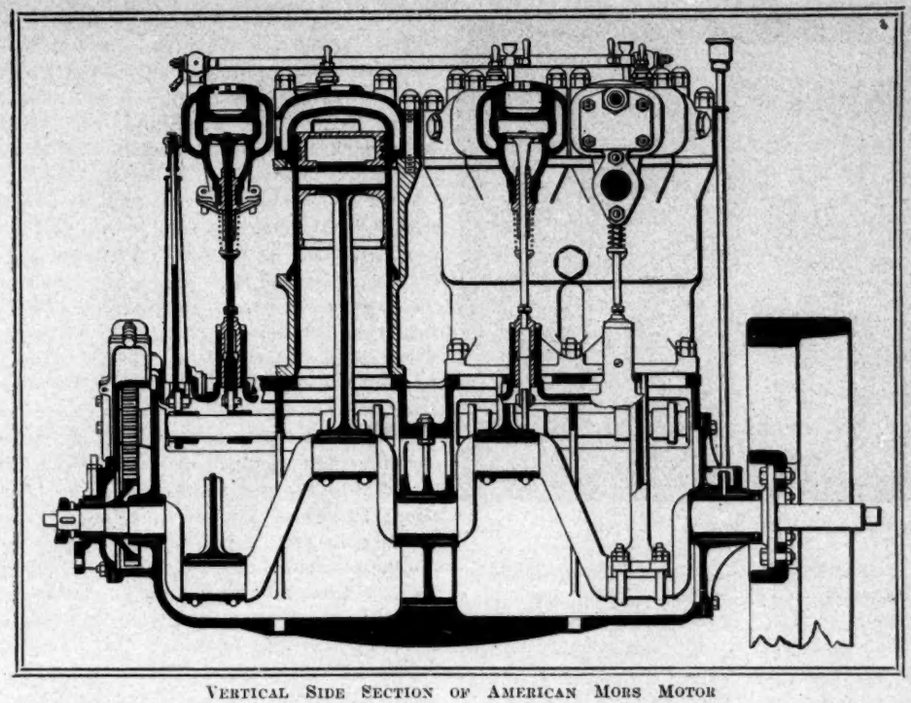
shunted supply of water from the motor cooling system may keep the carbureter always at a uniform temperature. In the illustration of the carbureter for the 50-horsepower car the control through the rod K to the driver has a twofold action, working the butterfly throttle through the double arm L, through the connection L1 working the valve M and also through the arm N and N1 acting on the auxiliary air valve G, causing this valve to act independent of the suction of the cylinders. This additional control of the valve G is not used on the 28-32-horsepower car. A spring K1 tends to bring the different actuating parts back to normal position.

The motor has two independent systems of ignition, a jump spark set for starting and emergency and a make-and-break set for regular running. The latter gets its current from an imported Mors magneto, fully discussed later, which sits near the front at the left side of the motor and is direct-gear-driven from the exhaust valve camshaft gear. The plugs are in the tops of the cylinders, on the front and back corners, respectively, of the front and rear cylinders of each pair, while the hammer device enters the corresponding side wall of each cylinder head. The make-and-break mechanism itself is operated by lift rods from the inlet camshaft. Knife switches connect the buss bar with the individual plugs. The time of firing is regulated by a lever and quadrant on the dash, which controls a link and lever movement between the camshaft and the hammer lifting rods. A storage battery on the dash and a Herz coil provide the current for the jump spark system, through a commutator on a vertical shaft driven by bevel gear from the same camshaft gear that drives the water pump.

Low tension electric current for the make-and-break ignition is furnished from a gear-driven Mors magneto, illustrated herewith. Motor Age readers are aware that in a low-tension system the magneto is of the simplest possible construction, consisting of a set of three horseshoe magnets A, of the permanent type, and a revolving armature core C, around which is wrapped a coil No. 28 B. & S. silk-covered copper wire D, wound in twenty layers and eighty turns. One end of this wire is grounded at R into the armature core; in short, the metal spool around which the wire is wound, and the other end of the wire is taken at J out of the core and conducted through an insulated rod J1 within the hollow axle F1 at the right end, and thence through the arm J2 bearing on the end of the rod J1 and to the screw J3, from which a single wire leads it to the bus bars on the motor. The generation of current in the magneto is simple. In the end view of the instrument magnetic lines of force pass between the ends A1 and A2 of the magnets, the pole pieces P screwed to the ends of these magnets serving to converge the lines of force so that as the armature C revolves the wires D will twice in each revolution cut these lines of force, in the cutting of which is the generation of the current. The armature is revolved at a speed presumably half of that of the crankshaft, its connections being through the jaw G threaded on and taper pinned to the left end of the shaft F. Structurally the Mors magneto has many points that invite attention. The



TWO SIDE SECTIONS OF MORS CARBURETER FOR 50-HORSEPOWER MOTOR



VERTICAL SIDE SECTION OF AMERICAN MORS MOTOR

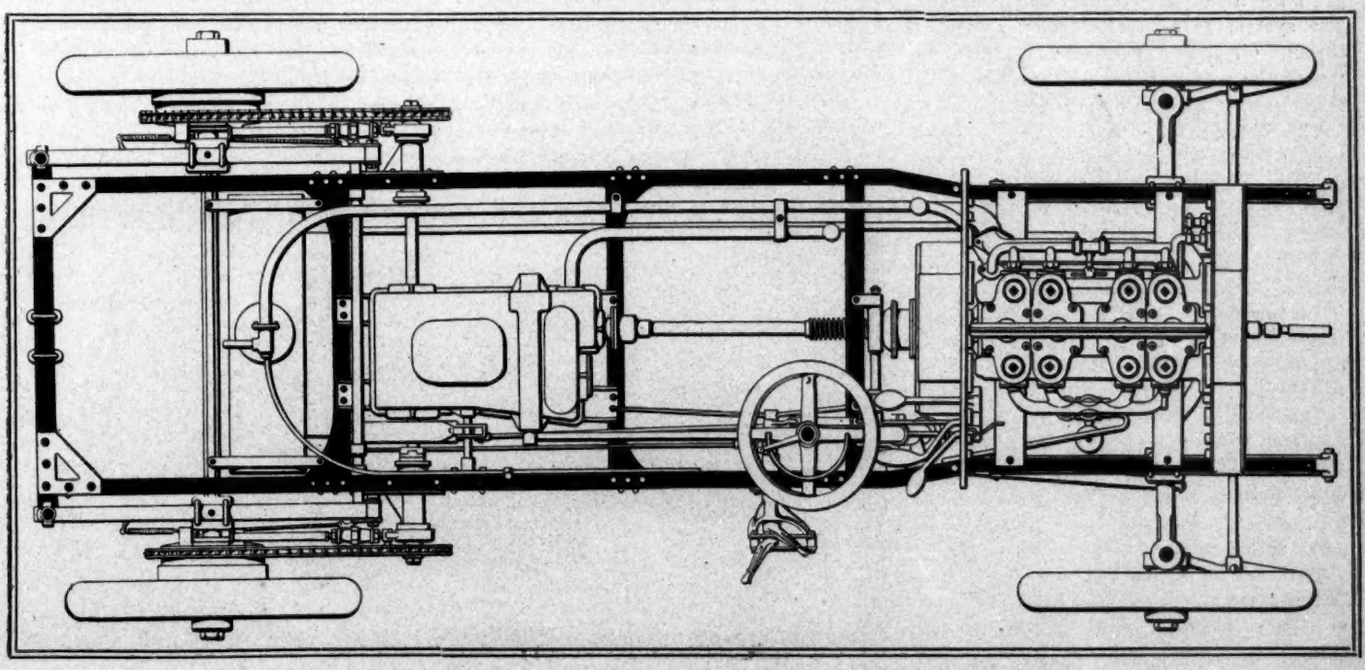
armature C is carried at each end on plates E which thread onto the short bearing shafts F and F1, at the left and right ends, respectively, and these plates are additionally secured to these shafts. Bushings, shown in black, and of the shoulder variety, are furnished and lubrication is through oilers O, one for each bearing. In insulating the rod J1 through which the current leaves the magneto a long insulation sleeve H does duty, which sleeve has at its inner end a similar insulation plate H3 and the curved arm J2 works on a pin N surrounded with an insulation sleeve or hub H1. The winding D around the core has a suitable insulation from this core consisting of a leatheroid material. In order to retain the curved arm J2 continuously against the end of the bolt J1 a coil spring surrounds the pin N carrying the arm and has a curved part M stirruped around the end of J2 and tending to hold it in contact with J1. Plates L at each end bearing prevent the oil working into the armature department and there causing short circuiting. A plate K with upper plate K1 each bolted to the pole pieces P form the important features in the holding of the several parts together.

Water circulation through the motor cooling system is by means of a gear-driven double gear pump on the exhaust side, and operated from the exhaust valve camshaft. The water is sent from the pump to the radiator; thence to the lower portion of the cylinder jackets; from the tops of the cylinder jackets to the tank, and from the tank to the pump. The radiator is of the ribbed continuous tube pattern, and the tank, under the rear of the car, contains 12 gallons of water. It is provided with a steam outlet and water overflow and is filled at footboard.

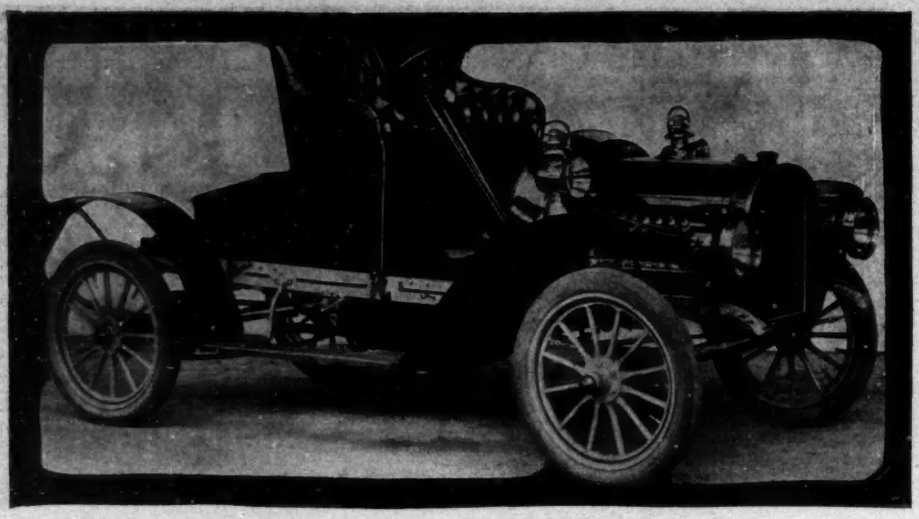
Lubrication of the motor is by splash, there being a central partition in the crankcase to keep an equal level in both ends regardless of car inclination on hills. There is on the dash an aluminum-cased mechanical oiler, working by means of a plunger pump actuated by suitable lever arms and a vertical connecting rod from the inlet valve camshaft. This has two sight feeds, from one of which an oil lead extends to the center of the inlet valve camshaft casing, oiling the camshaft and then allowing oil to drip into the crankcase. The lead from the other sight feed extends to the camshaft gears. Also on the mechanical oiler reservoir is a hand plunger pump whereby, if needed, oil may be pumped directly to the crankcase. The rear crankshaft bearing is lubricated by a vertical gravity feed from an oil cup.

In the final element of the motor—the exhaust—the cast iron manifold, into which the exhaust gases pass from the valve chambers, is longitudinallly ribbed and is very large, as is likewise the final exhaust tube to the muffler. The area of this exhaust passage relative to the area of each exhaust valve is substantially two to one. The muffler itself is a concentric tube one, with asbestos layers to prevent a metallic sound.

The clutch is a large, wide, leather-faced cone. Underneath the leather on the cone are depressions in which are rubber pads to give a spring action to the leather. The clutch is normally held in engagement within the flywheel rim by a specially designed ball thrust bearing, incorporated



PLAN VIEW OF MORS 24-32-HORSEPOWER CHASSIS SHOWING FRAME CONSTRUCTION



RAMBLER "27" RUNABOUT IN 1907 APPAREL

with the spherical universal joint connecting the cone with the propellershaft. There is also a ball thrust bearing in combination with the clutch release shifter ring. A grease cup provides lubrication for the clutch mechanism.

The short propellershaft, with a universal joint also at its rear end, transmits the power to the transmission gear, which by a successive set of sliding gears, furnishes four forward speeds and a reverse, with the direct drive on the fourth speed. The most characteristic feature of the gearing is the employment of two pinions, one fixed and one sliding, on the idler stub axle through which the reverse drive is obtained. The gearing is contained within an aluminum case in two halves, split on the shaft center line, and supported by the lower section lying directly on cross bars of the main frame of the car. There are seventeen annular ball-bearings in the set, while the sliding shaft bearings are all of steel, hardened and ground. The gears are all of case-hardened nickel steel. The system is lubricated by pouring oil through oil plugs in the hand holes on the top of the casing, or through a special oil funnel under the footboard.

The differential gear is of the bevel type, with three pinions and the side gears and is entirely within the transmission gearcase, the crossshaft extending to the side bars of the main frame, where, by universal joints, it connects with sprocket shafts, each running on two ball-bearings in a bracket fixed to the frame. From these sprockets roller chains, of 2½-inch pitch by ¾-inch width, transmit to the wheels.

There is an external contracting band brake on the differential and an expanding internal break in a drum on each rear wheel. These drums are bolted directly to the rear wheel spokes and the rear drive sprockets are bolted to the drums.

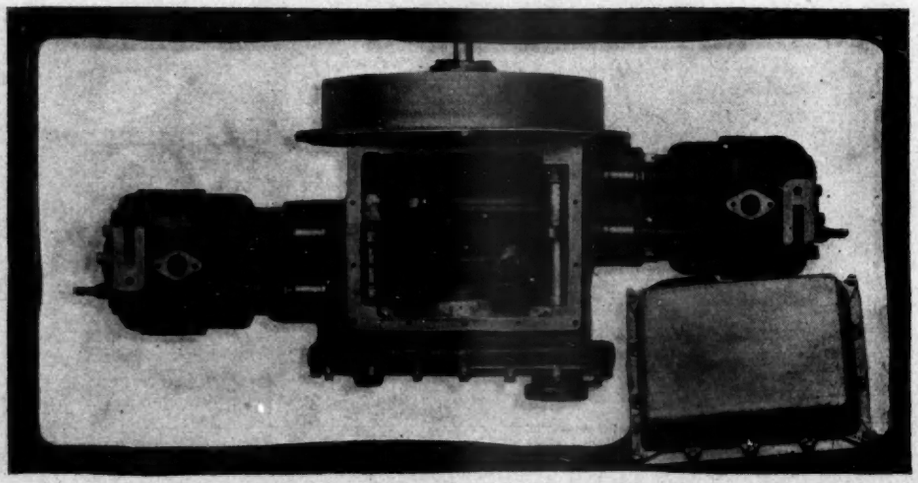
The control of the car is simple. The left pedal releases the clutch and, by connection with the butterfly throttle on the carbureter, also simultaneously throttles the engine. The right pedal applies the differential band brake. A small accelerator pedal, at the side of the brake pedal, opens the throttle exactly as does a hand lever on the steering wheel, the use of either being optional. The four forward speeds and reverse are obtained by a single side lever. The emergency side lever applies the rear wheel expanding brakes and releases the clutch at the same time. There is a short-circuiting plug on the dash and a current cut-out button on the steering wheel. On the bottom of the radiator is a thumb latch whereby the throttle may be opened when cranking to start the engine. For emergency on steep hills there is a back-stop sprag which may be let down from the driver's seat.

RAMBLER "27" RUNABOUT

Rambler "27" is how Thomas B. Jeffery & Co., Kenosha, Wis., designate their 1907 runabout car. As this year, so next, the Jeffery factory will devote its manufacturing energy to two distinct types of machines; a series of low and medium-powered cars with a pair of opposed, water-cooled cylinders carried lengthwise beneath the center of the body and final transmission from a planetary gearset by single or double chains, and another series of higher-powered vehicles possessing as their distinctive points vertical, four-cylinder motors, sliding gear transmission and either shaft or chain drive. The runabout "27" is a member of the former group, but merits recognition as a redoubtable roadster car by its high-powered motor with 4½ by 5-inch cylinders, and its 90-inch wheelbase, as well as with seats carried well in front of the back axle, which, combined with long front and back springs, tends to ease of carriage. Pressed steel, an oft-told tale, is the backbone of the framework. Besides designing and forming each member of the frame to its particular location and duty care has been bestowed on the riveting of cross pieces to the side channel sections, the latter agreeably tapered at their forward ends for the reception of the drop-forged spring hangers. In the spring suspension both sets, front and rear, are made long, with broad and comparatively light-weight leaves. In front a pair of semi-elliptics perform the duty of frame support on the axles, but in rear full elliptics with involute ends are called upon. Both sets are 38 inches in length. Artillery wood wheels 30 inches in diameter carry 3½-inch tires in front and rear.

Before referring in detail to the motor, planetary gearset and transmitting parts, it is sufficient for simplification to mention that the cylinders are carried close to the framework at the left side and are supported well amidship, that the gearset is to the right and that the sprocket for final transmission occupying a position to the right of the gearset.

The motor is a new pattern of the double-opposed type, 4½-inch bore and 5-inch stroke. Each cylinder is cast in one piece, with offset valve chamber. Close-grained gray iron is used and after boring they are ground to size and good surface. Pistons are of the same material with four rings each, three above and one below the wristpin. After both pistons and rings are ground they are fitted to the cylinders and put through a special finishing process which gives a mirror polish and a gas-tight fit. Valves are

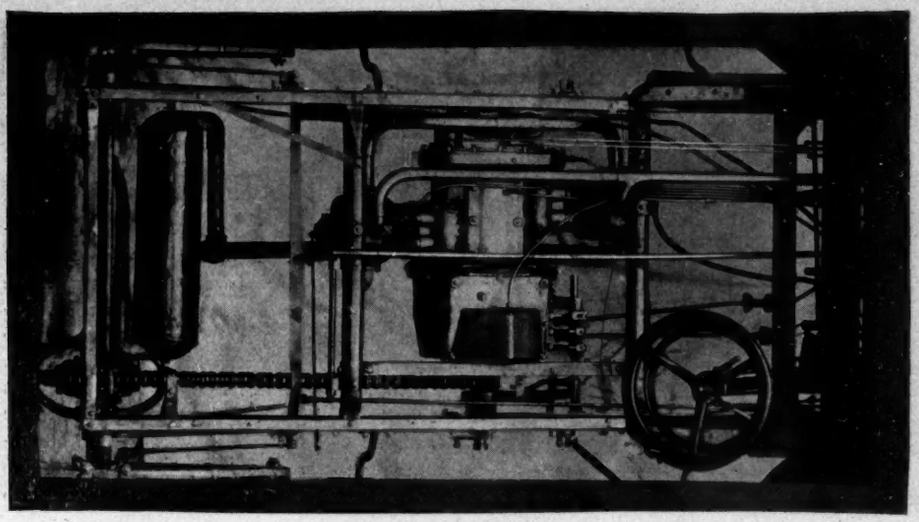


USING TWO CAMSHAFTS MAKES RAMBLER "27" MOTOR MORE ACCESSIBLE

nickel-steel drop forgings of large diameter with heads of special design tending to prevent breakage or warping. Operation is by direct thrust from cams and push-rods. The latter are guarded by large cylindrical fittings, avoiding wear and furnishing means by which the seating of the valves may be adjusted. Two camshafts are provided, each set well removed from the crank, thus reducing the length of valve stems and pushrods and allowing more free access to the connecting rod bearings and interior of the crankcase than would not be possible with a single camshaft as ordinarily placed. The bearings are of anti-friction metal and closely fitted. The main connecting rod bearings are of the hinge type and readily adjustable through the hand-hole in the upper side of the crankcase. The piston pin bearings are of that style in which the pin is rigidly clamped in the end of the connecting rod and the extending ends rest in bronze bushings in the piston. By this method the bearing surface is greater than where the pin is fixed in the piston. Motors are water-cooled, the circulation being maintained by the use of large leading tubes operating on the thermo-syphon system. The radiator is the flat tube type with about 10,000 square inches of cooling surface. Lubrication is by pressure feed with three sight-feed regulators on the dash. From these oil is carried to both cylinders and to the transmission gearcase.

Ignition is by jump spark, the coil being a double unit located on the dash with two-way switch and cut-out plug on the front of the coil box. Spark plugs are seated on the cylinder heads directly over the inlet valves. The commutator is of the roller contact type. Electrical energy is furnished in the regular equipment, from two sets of dry cells.

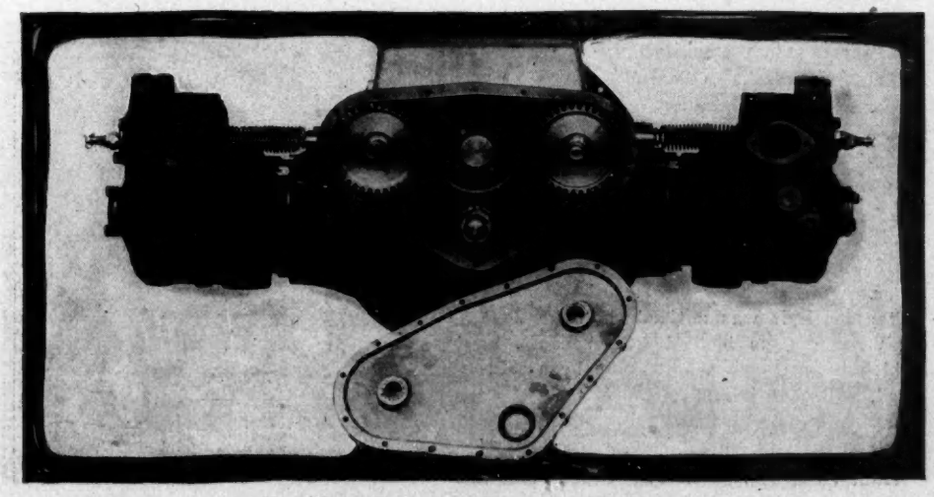
The transmission gear, of the planetary type, located on an extension of the motor-shaft and entirely enclosed, has the gearcase attached directly to the crankcase of the motor, and it contains not only the change speed gears but the flywheel and clutch. It is, in short, oil-tight and the entire transmitting mechanism runs in an oil bath. The motor and change-speed gears are thus an integral unit with three-point support and the construction is of such strength and rigidity that no torsion of the motor frame can cause disalignment of the gears or bearings. The connection between motor and transmitting gears in this model is a multiple disk clutch of thirteen disks with ample friction surface. All gears are cut from solid forgings and carefully hardened. The brake bands for setting the various speeds are of large dimensions and faced with friction bands of special material. The application of the two forward speeds is by a lever at the side of the car and the reverse is applied by means of a pedal in the footboard. Two sets of brakes are provided, one of the band type on the transmission gear and a pair of expanding ring brakes in the rear wheels. The latter are enclosed in drums built integrally with the hubs and are operated through a balance bar which produces equal pressure on each wheel.



CHASSIS RAMBLER "27" SHOWING MOTOR AND GEARSET

Car users have frequently pointed the finger of inaccessibility at cars having opposed motors positioned beneath the center of the body, necessitating the removal of the footboards and other parts before gaining access to any of the cylinders and their parts. In defense of this motor location is the argument of small loss of power owing to the directness of the drive to the back axle, many makers agreeing that more power is conserved in this style than in others where the pair of cylinders is located beneath a front bonnet. In demonstrating accessibility in model "27" such points as follow are noted:

A large plate on the top of the motor crankcase gives access to the camshafts, gears and connecting rods. The transmission gearcase is similarly provided, giving admission to the brake bands and applying mechanism. The design of the motor supports is such that, by releasing the outer, the end of the crankshaft may be lowered and by removing the bolts holding the gearcase cover to the motor the entire transmitting mechanism may be removed from the mainshaft without quite detaching the motor from the frame. By similar means the crankshaft may be removed from the motor without interference with camshafts, cylinders or pistons other than releasing the connecting rods from the mainshaft. By removing the cover plate over the crankcase the camshafts may be removed entire without interference with the valves. All nuts are furnished with locking devices. The carbureter is located at the left of the engine, between it and the side frame, and is, with all its connections, within view and easy access. It is of the new Rambler type. Both inlet and exhaust pipes are reached from over the motor, as are also all oil pipes and connections. The body of the car is independent of all controlling or other mechanism and is joined to the chassis by means of lock hinges of special design. There are two of them at each side of the body at the outside of the frame. By loosening a knurled handnut on each of the two locks on either side of the car, the entire body may be swung over to the opposite side and held in place by braces provided for the purpose. By loosening all four hinges the body may be entirely removed.



HALF-TIME GEARS ON RAMBLER "27" MOTOR

SHOP KINKS

BALL BEARING ADJUSTMENT

In adjusting a cup and cone ball-bearing it must be remembered a bearing which seems to be properly adjusted before the locknut is tightened will be too tight after that operation has been performed. The reason is simply that the locknut takes up by its pressure whatever looseness there may be in the threads of the first nut, crowding it against the ball cone. To adjust, therefore, it will be necessary to experiment a little. The nut should be screwed up until no slack can be felt in the bearing, but still not enough to make the bearing tight. It should then be backed off slightly, the lock washer usually furnshed put in place, and the locknut carefully tightened. The wheel must then be tried again and unless a slight but perceptible shake can be detected the locknut must be unscrewed and the first nut backed off a little more.

FOR FLOODING CARBURETER

A recent case of flooding in the carbureter, which did not seem to be due either to leakage of the float valve or to the float being too high, was finally discovered to be due to the settling of the float in its seat. The valve was of the balanced type shown in figure 3. It had a steel stem A threaded into a brass weight B, which rested on the short ends of the two levers CC. The float itself rested on the long ends of the same levers, and as the gasoline rose in the float chamber the float rose with it and allowed the weight to carry the needle valve to its seat. After grinding the needle valve with pumice stone had failed to disclose the cause of the flooding, it was discovered that when the float was released and the valve was on its seat the levers were entirely deprived of play. In other words, the short ends of these levers were bottoming on the casting forming the seat, so that the valve was not seated at all. To correct the trouble the valve was heated with a torch to melt the solder, and was given about two turns in the weight B to bring the weight higher up. It was found on replacing to be perfectly tight, but the job had been slightly overdone, as even two turns of a fine thread on the valve stem amounted to considerably more than that at the long ends of the levers. In other words, the float cut off the gasoline supply at too low a level and the engine was very hard to start in consequence; in fact, it was impossible to start—it had 4½ by 5½-inch cylinders—with the compression cocks open, as the suction was then insufficient. Nevertheless, a little adjustment of the spring on the auxiliary valve of the carbureter gave excellent results when the engine was once started; and the float valve might have remained undisturbed had it not been that a few days later the car stopped mysteriously and kept its owner busy for the next hour and a half priming and cranking and ineffectually tinkering with float, float valve, auxiliary valve, and even spray plug—which was of the Longuemare type—in a vain endeavor to locate the cause of the trouble. The motor would start after priming and run the car, at first a few hundred yards, which was gradually reduced to 4 or 5 feet, when the engine would stop. Clearly the trouble was not in the ignition but in some failure of the gasoline to feed continuously to the spray plug. Flushing the carbureter, taking out the float and float valve, and unscrewing the spray plug showed a free flow of gasoline at each point, and it could not be imagined why an obstruction should appear when the parts were assembled. A tired and disgusted automobile party ate a late a la carte lunch at a very poor hotel, congratulating themselves only that they were in a place where it was not necessary to go hungry altogether, and after lunch another attack was made on the refractory machine. The float and float valve had been taken out and replaced fully half a dozen times with no result whatever, but when they were again removed after lunch it was noticed that the float valve stem was loose in the seat B, in which it was supposed to have been soldered, and that it had screwed itself clear down and was closing the gasoline inlet even when the levers were lifting the weight as far as possible. The only clew to the trouble, so far as had been discovered up to that time, was the fact that priming, which was done by opening a special valve near the base of the spray nozzle, and sometimes—especially toward the last—failed to bring down gasoline as it should. Evidently the valve had been slowly screwing itself downward, cutting off the gasoline at a lower and lower level in the float chamber, which explained the gradually diminishing distances that the car could be run. Once the trouble was discovered it was easily cured. A shop was found and the valve and weight were again heated. It was discovered that there was no solder at all in the threads inside the weights, so the weight was screwed right off the stem, and stem and weight separately heated and tinned with solder and acid, after which they were put together again, making an absolutely permanent job with solder on all the threads above and below, as well as inside the weight. Advantage was taken of the opportunity to correct the adjustment of the weight on the stem, although a second trial was necessary for this purpose, as it took only a fraction of a turn to make all the difference between good and bad adjustment.

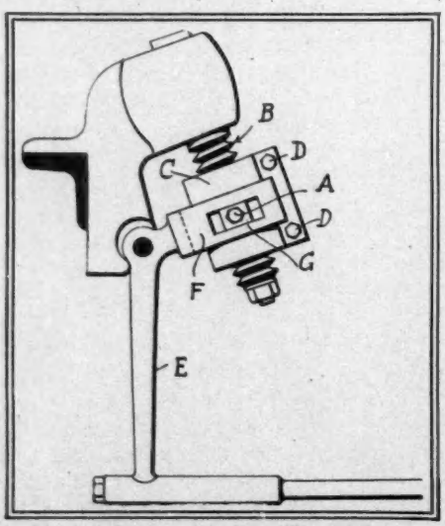


FIGURE 1—AVOIDING AN ACCIDENT

AVOIDING AN ACCIDENT

An accident which may easily have serious consequences is the loosening of one of the pivot screws A in an exposed screw and nut steering gear. In this form of steering gear the lower end of the steering column carries a steep pitch screw B, on which runs a steel or bronze nut C, which is commonly split and clamped by screws D, for adjustment. The bell crank forg-

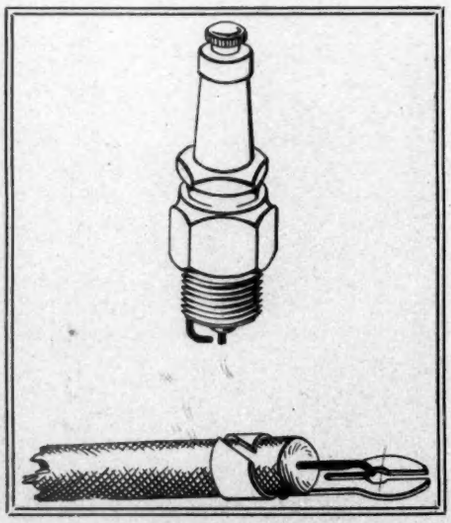


FIGURE 2—REPLACES SPARK GAP

ing E has the short arm F forked and slotted, and each of the pivot screws A is threaded into the nut C and has a bearing in a square steel block G which slides in the slot in F as the large nut C is screwed up and down by turning the steering wheel. These screws A have a rather limited hold in C and unless they are held in some manner they may easily unscrew. One way to hold them is to drill clear down through the nut and the pivot screw and put in a cotterpin 3 or 4 inches long. If this does not seem practicable the heads of the screws may be drilled, and a U-shaped loop of stiff piano wire bent to span the steering gear so that each end of the loop enters the head of one of the screws, thus holding it in place.

REPLACES SPARK GAP

A spark plug with its head formed as shown in figure 2 is not an easy thing to which to attach an auxiliary spark gap device, as there is no binding post. A somewhat crude but still successful device for overcoming this difficulty is to attach the clip, with which this plug is furnished, to the insulation of the secondary cable in the customary way, but without connecting the wire of the cable to the clip. Instead, the end of the wire is bent so that

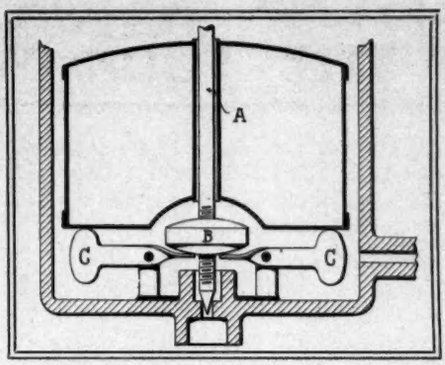


FIGURE 3—FLOODING CARBURETER

it approaches close to the head of the plug when the clip is in place, forming a spark gap of about 1-16 inch. The only objection to this device is that the clip as commonly formed is not long enough to give a thoroughly rigid hold on the insulation without being steadied by the wire being positively attached to something that is secure.

ADJUSTING BRAKES

Failure of a metal-to-metal brake to hold may be due to unequal or one-sided wear of the brake shoes. If it is found the shoes are in this condition they should be taken off and clamped to the face plate of a lathe and bored to the diameter of the brake drum. Occasionally emergency brake shoes are made interchangeable for right and left. If the brake rods are not in direct line, they will wear one-sided, but when this happens they can be taken off and interchanged.

WHERE OIL IS NECESSARY

Difficulty in shifting gears may be due to wear of the gearshaft bearings or to lack of oil in the clutch bearings. The clutch requires oil in its principal bearing, which is commonly on an extension of the crankshaft, and also in the thrust bearing. If the former is not oiled the clutch will not adapt itself quickly to a change in the speed of the first gearshaft when the gears are shifted for speed change.

PLACE FOR TAIL LIGHT

A tail lamp which is mounted close to the body at the rear of a car cannot be expected to stay alight, and if in addition to this it is in the path of the exhaust gases from the muffler, the case is hopeless. To keep the lamp alight it must be mounted some inches from the body, and preferably a trifle to one side, where it will not be in a partial vacuum due to the suction of the car. Not improbably this will require a special bracket.

MOTOR CAR LITERATURE

Users of G & J tires should not be without a copy of the G & J Tire Co.'s telegraph code, which contains every possible form of telegraph code for ordering all sizes of tires, universal rims, and other G & J motor sundries. The book has twenty-two pages and is of pocket size.

The Association of Licensed Automobile Manufacturers, in keeping with its campaign for standardization of motor car parts, has issued an exhaustive booklet on the standard shapes and sizes of its hexagon-head screws, castle and plain nuts. In the opening ten pages are illustrations, not to scale, of hexagon head screws varying from ¼-inch diameter to 1-inch diameter, each page carrying twelve line illustrations. Following this is a specification scheme dealing with the material to be used and the tolerance. Next come four pages of tables of dimensions, one for screws, another for plain nuts, a third for castle nuts and a summary table containing details of the screws and nuts.

"Ways and Whereabouts of the Automobile," a new pocket-size, cloth-covered book relative to the motor car, gives in 212 numbered paragraphs simple explanations of the elements of the car, the language being well-suited for non-technical readers. One hundred and two line illustrations simplify the explanations. The reading matter appears in twenty-five chapters arranged under such representative heads as the four-cycle idea, transmission of power, motor, ignition, carbureters, cooling, clutches, axles, bearings, brakes, steering, lubrication, frames, tires, springs, bodies, materials, accessibility, horsepower, gear ratios and miscellaneous considerations. The book comes from the Automobile Institute, Cleveland, O.

In its "Flight of the 'Thirty'" the Packard Motor Car Co. tells the story of covering 606 miles separating Detroit and Chicago in its 1907 Packard "30" in 20 hours and 35 minutes. On the opening page is a schedule of towns passed through, the distances between each two and the time of arrival and departure from each. The thirteen pages of story, punctuated with half a dozen illustrations, help make the tale of the trip interesting. The cover, of deep gray paper, corded in place, is made doubly attractive by a night road scene with the backs of the heads and shoulders of the front seat passengers in the foreground and an illumined stretch of road bordered by luxuriant grass and low shrubs forming the center and background of the picture. The Packard concern is responsible for another large-sized booklet entitled "The Packard Limousine," being the story of the making of its limousine bodies, which is a worthy porduction. In order, the illustrations tell how these bodies are made, as follows: No. 1, a glimpse of the body-making room with bodies in various stages of completion; No. 2, making a part with aid of jig; No. 3, finishing a solid timber door post; No. 4, skeleton framework of body; No. 5, hammering the aluminum to the framework; No. 6, framework enclosed with the aluminum; No. 7, applying one of the coats of pigment; No. 8, working on the upholstering; No. 9, fitting the glass front, and No. 10, the body crated for shipment. These illustrations are on alternate pages and are supplemented on opposite pages with a short paragraph descriptive of the work bestowed on the body.

Catalogue No. 7, from the Borbein Auto Co., St. Louis, Mo., devotes ten pages to running gears, giving such details of each as size of front axles, material used in frames with measurements in inches, widths and lengths in feet, diameter of wheels and tires, chain measurements of chains, brake equipment and cost. The lines of bodies finished in the white is comprehensive. Coupled with each illustration is a complete list of details as given in the running gear specifications. Bodies in all shapes from a runabout to a capacious limousine, including detachable tonneau, are shown. The remainder of the book contains specification, prices and illustrations on front and rear axles with wheels, or without; spur differential gears, chains, steering gears, sliding and planetary transmission gears, forgings for tie rods, lamp brackets, pedals, and other parts, like bonnets, radiators, tires and Brennan motors.

FROM THE FOUR WINDS

Teste Recovering—Teste, the Panhard driver injured in the grand prix, is reported to be almost convalescent, having left the hospital and gone to Aix-les-Bains.

Pretty Road—Lansing, Mich., is to have the prettiest as well as the most substantial boulevard in western Michigan. Work is now progressing on a road from that city to Waverly which winds through the most beautiful scenery along Grand river. The road hugs the shore of the stream for a distance of a mile, passing through three beautiful ravines.

Cost of Liquid Air—English motorists who have been discussing the probabilities of being able to use liquid air for the propulsion of a motor are astonished to learn that a 10-horsepower motor would require 3,000 pounds of liquid air for a 10-hour run and that the cost would be about $560, while the liquid air tank would have to be 7 by 5 by 4 feet.

After a Salvage Car—If efforts of Fire Chief C. E. Coots, of Indianapolis, are successful, that city will have an automobile salvage corps in the near future. Recently the only salvage corps in the city went out of existence. It is now planned to replace it with a fast automobile stationed at one of the down town engine houses. Speed would be the first requisite of such a car, as it would have to cover the entire city.

Wanted, Car for Twenty—A trip in an automobile with his twenty children from the upper peninsula of Michigan to the Pacific coast is the unique stunt planned by H. M. Draper, formerly superintendent of the good will farm at Houghton, Mich. Mr. Draper passed through Ontonagon with his children en route to Seattle, Wash., where an industrial school is to be established. Mr. Draper is negotiating for an automobile which will carry the whole family on their travels and hopes to secure one soon. They will make the trip by slow stages, giving entertainments along the route.

Means Much to Motorists—The decision of the United States engineers at Pittsburg to build a government bridge over the Ohio river to connect Sewickley, on the Pittsburg, Fort Wayne & Chicago railroad, and Coraopolis, on the Pittsburg & Lake Erie railroad, is a matter of great moment to automobilists in general. The bridge will be 12 miles below Pittsburg and will enable motorists to go from the magnificent driveways among the country homes of dozens of Pittsburg millionaires on Sewickley Heights directly across the river to Coraopolis Heights, which possesses even greater natural beauties. The roads around Coraopolis are now being macadamized and with the new bridge over the Ohio this section will become a favorite run from the start for automobilists from two states, for the Ohio state line is only a dozen miles farther down the river from Corapolis.

Prize-Winning Chauffeur—Robert J. Jones, who drives a 50-horsepower Apperson for Franklin Ames, won the prize, a fur coat, offered in the voting contest for the most popular chauffeur in Chicago the closing night of the automobile parts show at the First regiment armory. He had thirty-seven votes to twenty-seven received by Reuben Delaney, driver for John G. Shedd.

Pike in Shape Now—Philadelphia automobilists are congratulating themselves on the completion of repairs to the Darby and Chester turnpike, the main artery of automobile touring travel to the south. The work began 6 months ago with the resurfacing of an experimental mile at Ridley park with a German composition said to be not only waterproof, but dustless, and the material panned out so well that the entire length of the pike was similarly treated.

After Glass Throwers—The Muskegon Motorcycle Club is engaged in plans to keep the streets of Muskegon in good condition for motor cycles and automobiles, and to that end will make an appeal to the common council to strictly enforce the ordinance to prevent the throwing of glass into the streets. The club has done much along the line of road improvement the past season and has now turned its attention to keeping the roads good. The club has just closed a prosperous season with the treasury in good condition.

Stealing Extra Tires—The Aerocar Co. has sent out notices to its agents requesting them to notify owners of the Aerocars that tire thieves are at work. They are advised to procure a lock and chain and secure the emergency tire to the running board of the car so it cannot be removed without the owner's knowledge. The Aerocar people fit out their cars with a complete touring equipment, including a complete extra tire, inner tube and tire casing. Several of these extra tires have been stolen, hence the warning.

Want Chauffeurs Licensed—The Automobile Club of Pittsburg and the city officials are earnestly agitating the matter of rigid examinations for chauffeurs. The Pennsylvania state law makes no such provision now and there is no city ordinance that bears on the subject. Any person over 18 years old can run a car. It is proposed to submit a bill at the next legislature providing that every applicant for a chauffeur's license shall be closely examined as to his knowledge of a motor car and all its parts, the manner of starting and stopping a machine, speed laws and general ideas as to safety, etc. The city of Pittsburg is also likely to have some ordinances passed this winter which shall cover in part at least this matter.

Long Trip in Mora—Ward Grow, of Osage, Ia., has just recently returned home after a 1,300-mile trip in a Mora roadster. He was away 6 days and his actual running time is claimed to be 69 hours 20 minutes, his longest run in 1 day being 278 miles and his shortest 146.

Young Driver—The Waltham Mfg. Co. has received a letter from its Scandinavian representatives sending a photograph of a boy 3 years 7 months old driving an Orient buckboard in Orebro, Sweden. It is claimed the youngster has driven the car around the town square, starting and stopping it at will.

Give Old Women a Ride—The Automobile Club of Pittsburg lately added another big credit to its good name by giving the inmates of the Home for Aged Protestant Women in Wilkinsburg an automobile party. More than forty old women were whirled over the principal driveways of the city during one of the most balmy of September afternoons.

Cleveland's Mileage Contest—The quarterly mileage contest of the Cleveland Automobile Club ended October 1, but it will be a week or more before Secretary Goddard can check up all the odometers and secure proofs of the mileages. During the last quarter there has been a great deal of rivalry among members to secure the magnificent cup offered as a prize. The last cup was won by Fred J. Baird, who made 4,380 miles in the 3 months.

Free Parking for Maxwells—The Maxwell-Briscoe Motor Co. has renewed its invitation to all owners of its cars and their friends to avail themselves of the free parking space offered by the company at the Nassau circuit for the Vanderbilt race. Maxwell owners turned out in force at the recent eliminating trial and a line of fifty or more Maxwells made an impressive showing. The Maxwell reserved section is located on the Jericho turnpike, a mile below Krug's corners at Mineola. The parking space will hold about 600 cars.

New Kind of Test—A new type of road test was performed by Archie McLachlan, of the Royal Motor Car Co., of Cleveland, last week. One of the first '07 Royal Tourist cars was taken, fresh from the assembling floor, without the usual attention from the road testing man, filled with gasoline and other supplies, loaded with four women, McLachlan and another man, and immediately started on a 10-day trip into Canada. The party visited London, Woodstock, Glencoe and several other Canadian cities. Forty-two miles in 1 hour 5 minutes over hills with six in the car was made one night when the party was in a slight hurry to reach Woodstock.

AMONG THE MAKERS AND DEALERS

In Livery Line—Pyott & McGowan have entered into the automobile livery business in Philadelphia, with headquarters at the Locomobile agency at 249 North Broad street.

Emil Grossman Resigns—Willy Tischbein, president of the Continental Caoutchouc Co., announces that by mutual and friendly consent Emil Grossman will sever his connection as secretary, general manager and director of the company on Saturday.

Mosler Incorporates—The firm of A. R. Mosler & Co., 163 West Twenty-ninth street, New York, has been incorporated under the laws of the state of New York, the officers of the company being as follows: A. R. Mosler, president; William G. Liebling, secretary and treasurer.

Strike in Peoria—Forty-eight machinists at the factory of the St. Louis Motor Car Co., of Peoria, Ill., have struck for time and a half pay for all overtime. Pickets have been placed, but the makers refuse to give in. Because of the strike the new model will be delayed a couple of weeks.

Reo Branch in Chicago—R. M. Owen & Co. have opened a Reo branch in Chicago and will handle the territory contiguous to Chicago. They will also carry the Premier. L. J. Ollier, formerly with the Ralph Temple Automobile Co., is manager of the branch. A permanent location is now being sought by Mr. Ollier.

Two Quaker Blazes—Quick work with extinguishers prevented what might have been two serious fires last Saturday in Philadelphia—at the Eastern Automobile Co.'s garage, Broad below Callowhill, and at the Quaker City Automobile Co., 148 North Broad. In both instances the blaze resulted from gasoline igniting from exposed lights.

Valuable List—A valuable list has just been completed by the American Motor Car Manufacturers' Association for its members. It includes the names and addresses of every agent in the country, together with the car he handles. It is interesting to note that there are 865 first-class agents in addition to which there are 1,298 garages that do not handle any particular make of car. The Maxwell has 235 agents, the Ford 220, the Rambler more than 200, and the Reo 225.

Loziers for '07—The deliveries of 1907 Lozier cars will commence October 15. The first 1907 demonstrating car is expected at the New York salesrooms at Fifty-fifth street and Broadway next Monday. The car will possess the well-known features of the 1906 car, such as 117-inch wheelbase, Hess-Bright bearings throughout in transmission and wheels, nickel-steel forged axles, 40-horsepower motor with double system of ignition storage battery and high-tension magneto, four-speed sliding gear transmission of the selective type, back-stop safety device, dust-proof metal-to-metal brakes, platform spring suspension, seven-passenger body.

Another Maxwell Branch—It is proposed to open a Maxwell branch in Chicago the middle of the month at 1407 Michigan avenue under the charge of A. F. Chase, of the Maxwell-Briscoe-Chase Co.

Thomas Still Expanding—Plans filed in the bureau of building of Buffalo provide for the construction of a power house by the E. R. Thomas Motor Co. The structure will be erected at the rear of 1200 Niagara street at a cost of $5,000.

Healy Tire Branch—The Healy Leather Tire Co. has opened a branch at 1906 Broadway, New York city, to facilitate the proper handling of its tire repair business. In order to expedite deliveries a 10-horsepower Cadillac has been secured.

Buffalo Show Date—The fifth annual Buffalo automobile show will be held at convention hall, Buffalo, the week of February 18. The four previous shows took place the first week in March, but the week of February 18 is the only available one, hence the change of date.

Has Commercial Ideas—The purpose of the Chase Motor Truck Co., which was recently formed in Syracuse, is to manufacture commercial automobiles, which will include business runabouts, delivery wagons and trucks. The active partner is Aurin M. Chase. The names of his associates are withheld for the present.

Buys Brass Plant—The Syracuse Aluminum & Bronze Co., which manufactures automobile parts, has purchased the brass and aluminum department of the National Car Wheel Works, of Rochester. It is probable that it will be moved to the plant in Syracuse, at 530 Leavenworth avenue. Charles L. Ackerson is general manager.

E. V. Co. Officials—The Electric Vehicle Co. held its annual meeting in Jersey City and the following officers were elected: President, M. J. Budlong; treasurer, W. G. Henderson; secretary, H. W. Kyte; directors, M. J. Budlong, F. L. Kellogg, H. H. Vreeland, Albert Taylor, W. G. Henderson, Brant B. Schley, Jr.; M. Garvin, II, and W. O. Knudsen.

Strikers Sewed Up—A quietus has been put on the strike of machinists employed in Indianapolis automobile factories by a ruling of Judge Albert B. Anderson, of the United States circuit court, who has made permanent an injunction forbidding the strikers from picketing the plant of the Pope Motor Car Co. and from interfering with its employes. Since the strike employes of the plant have been assaulted repeatedly and it was necessary for the police to establish a strong guard at the hotel where they stopped. The factory has experienced no inconvenience from the strike.

Compound Locates—The latest car to secure representation in Philadelphia is the Compound, built at Middletown, Conn. Spencer & Wilkie have established an agency for this machine at 310 North Broad street.

Doing Well—The Syracuse Aluminum & Bronze Co., which makes castings for automobile manufacturers, is building a sheet iron molding room, 40 by 80 feet, in connection with the rest of its plant. This company declared a dividend for this year.

In Providence, Too—Foss & Hughes, Philadelphia agents for the Pierce Arrow, Cadillac and Baker cars, announce their intention of establishing an agency in Providence, R. I., for the exploitation of the Great Arrow. Archie Hughes will be in control of the new venture.

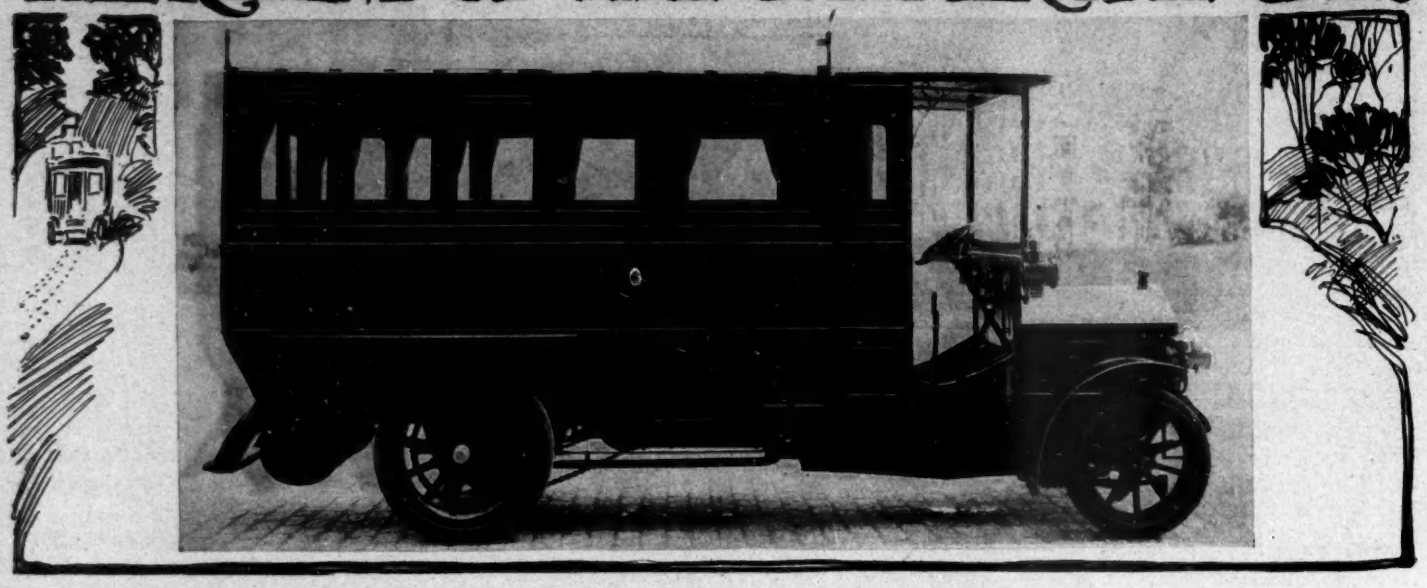
Has Many Big Orders—The Brown-Lipe Gear Co., of Syracuse, N. Y., which manufactures automobile parts, announces it has more orders on hand for the coming season than it had all last year. The new building is now complete up to the third floor and it is expected that it will be enclosed before snow flies. It will be five stories high.

Mining Experiment—The Solvay Process Co. is using a 20-horsepower Franklin, type D, to carry its engineers to Split Rock, Tully and the Montezuma marshes and other places where they are engaged in various operations. The company has also purchased a Pierce car and will endeavor to formulate a competitive statement as to mileage and cost between the air-cooled and water-cooled vehicles.

Factory for Denver—C. A. Smith, of Denver, representing eastern capitalists who have organized the Flint Automobile Co., is in Denver, looked into a proposition to locate a factory there. He has two sites under consideration, he says—one in a block northeast of Colfax avenue, near City park, and the other a few blocks from the ball park. He declares the plant will cost $600,000 and that the company will turn out a line of steamers to be called the Flint. Rufus W. Dean, of Boston, is president of the company.

New in Cleveland—A new bidder for patronage in Cleveland will be the Metropolitan Motor Car Co., which has just been incorporated, with W. C. Anderson, who was formerly with the Standard Automobile Co., of that city, as president; J. F. Pehen, formerly with Chisholm & Phillips, is vice-president, and H. L. Findlay, another well-known tradesman, is secretary-treasurer. The company will handle the Pierce, the Cadillac and the Babcock electric and do some repairing.

THE REALM OF THE COMMERCIAL CAR



STOWER, GASOLINE BUS USED IN GERMAN CITY AND INTERURBAN SERVICE

SMALL motor buses to carry from sixteen to eighteen passengers are being evtensively used for hotel and general country passenger traffic. In the first installment of this series, published August 9, were given particulars of the cost of operating such vehicles for town work. In the country the cost of operation is much the same under efficient management. The vehicles have, however, to be adapted to carry about ½-ton of baggage in addition to passengers. The comparative cost of a small country or hotel motor bus service, as against horse bus services for the same place, is as follows:

MOTOR

	Per annum	Per mile, cents
Original cost of a 20-horsepower, single decked, sixteen-passenger vehicle with roof accommodations for baggage and with smoking compartment in front, or not, as desired, fitted with solid rubber tires	$3,750	
Gasoline for sixty miles daily, three journeys of 10 miles out and 10 miles back or four journeys of 7½ miles out and 7½ miles back or six journeys of 5 miles out and 5 miles back, at the rate of 7 miles to the gallon at 25 cents per gallon. The vehicle will run 300 days per annum, thus giving a total mileage of 18,000 miles.....	$ 643.75	3.57
Lubricant, 90 miles to the gallon, at 32 cents per gallon..	64.00	.35
Tires guaranteed at per mile, 4 cents	720.00	4.00
Maintenance and repairs, stores, etc.....	540.00	3.00
Wages of driver, no conductor is necessary.....	520.00	2.88
Wages of assistant boy, if necessary, as may happen in some cases where many parcels have to be delivered by hand from the hotel or bus office, $130 per annum, or $2.50 per week.....	130.00	.72
Rent of garage.....	180.00	1.00
Depreciation at 10 per cent and interest on capital outlay at 5 per cent.....	562.50	3.13
Totals	$3,360.25	18.65

The total outside cost per motor bus mile will be 18.65 cents.

The total number of passengers carried per trip, outward or backward, will average easily ten passengers. The vehicle has to earn on a 10-mile trip, say, $2. The fares per passenger should be fixed at 50 cents, and would be cheap at that. No reasonable being will object to paying it. On a 5-mile trip the fares would be 25 cents each passenger, and on a 7½-mile trip, also 50 cents. These fares may appear slightly high to Americans familiar with 2-cent passenger rates on railroads and a cheaper rate on trolley lines, but the service given must be taken into consideration. The bus stops at the passenger's door and reaches rural sections impossible with trolley or steam cars, as they are restricted to their metal rails; whereas the motor bus is free to travel any country road or residential street in the city.

The income from a sixteen-passenger motor bus working in the country may therefore safely be reckoned at $30 per day, or $9,000 per year. On hotel work the income will amount to the same figure if a regular service is run and the district is fairly populous. Should the hotel, however, be situated in a district where only half the passengers provided for are available the income will still be $1,139.75 in excess of expenditure without taking into account the fact that in isolated districts heavy fares may be charged instead of the reasonable and low fares mentioned. The last paragraph, of course, applies to any other service in which the passengers are few.

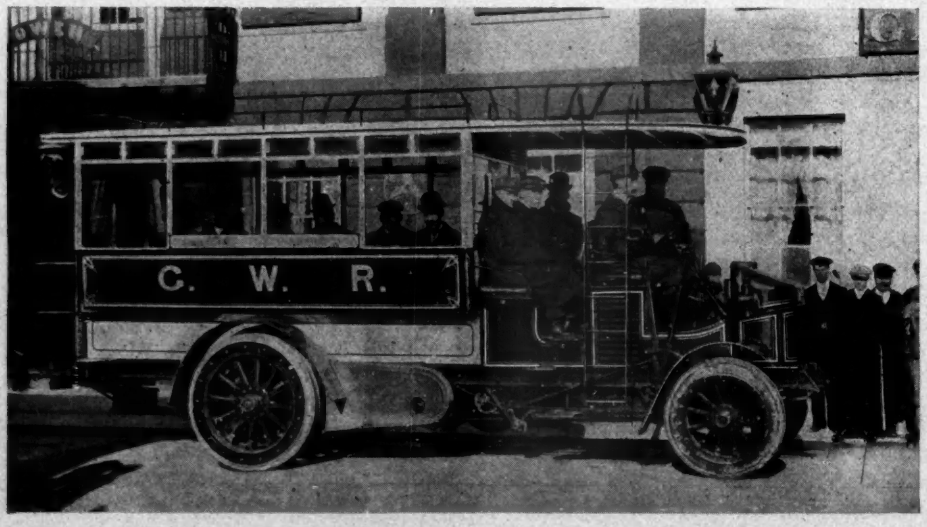
The profit on a sixteen-passenger country or hotel motor bus, carrying five passengers only per trip, at fares averaging 5 cents per mile up to a 10-mile trip, is as follows:

MOTOR

Annual income	$4,500.00
Annual gross outlay.....	3,360.25
Net profit.....	$1,139.75

The profit on a similar vehicle carrying ten passengers per trip at the same rate per mile is more than four times greater:

Annual income.....	$9,000.00
Annual gross outlay.....	3,360.25
Net profit	$5,639.75



WOLSELEY, SINGLE-DECKED BUS IN GREAT WESTERN RAILWAY USE

MOTOR TRANSPORT VS. STEAM, ELECTRIC, CANAL AND EQUINE SYSTEMS

PART III

ARROL-JOHNSTON, CARRIER VAN AND STATION BUSSETTE GENERALLY USED IN ENGLAND

The cost of running either of the motor services described by horses will approximate as follows:

HORSES

Original cost of two buses	$ 750
Original cost of two pairs of horses for regularly working the vehicles and one pair in reserve—six horses in all, at $250 each, including harness	1,250
Total cost	$2,000

	Per annum	Cents per mile
Two drivers at $6 each per week	$ 624	3.46
Two conductors at $5 each per week	520	2.88
One lad to deliver parcels at $2.50 per week	130	.72
Two others at $6 each per week	624	3.46
Fodder at $3 each per week per horse	936	5.20
Veterinary and shoeing at $15 per annum per horse	90	0.50
Stabling	500	2.77
Depreciation on horses and harness at 20 per cent	400	2.22
Depreciation on vehicles at 10 per cent	200	1.11
Repairs to vehicles, etc	130	.72
Totals	$4,154	23.04

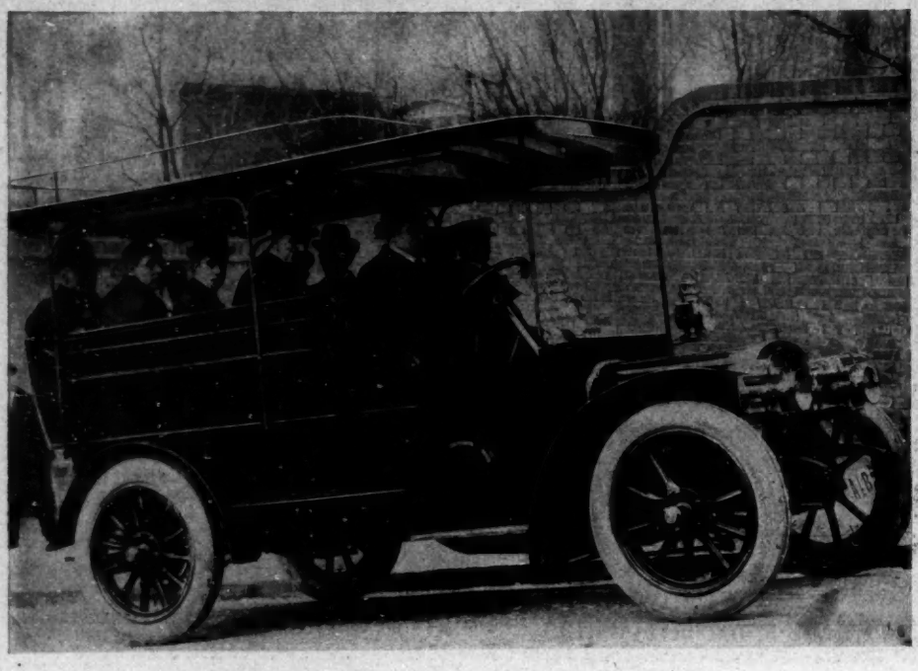
Two hostlers are included in the estimate, but the services of one may be partly written off in some instances, especially where, as will probably be the case, there are horses other than those for the buses to look after. The total outside cost per mile with two pair of horse buses working an 18,000-mile service annually will be 23.04 cents per mile. It will be impossible to carry out the service with one horse bus, although only five passengers per journey are carried. Even the two pair of horse buses will have to perform 30 miles each per day, and work from opposite ends, where the journeys are each 10 miles in length, thus stabling at either terminus every alternate night. As a matter of fact, it probably will be found in actual practice that two pair horse buses will be insufficient to work the 18,000-mile service. In that case the cost of operation by horses will be increased by at least $2,000 per annum—11.11 cents per mile. This will give a loss of $1,654 per annum if only an average of five passengers per trip is maintained on the fares mentioned as the basis of income, viz.:

Annual outgoings on three pair horses and buses	$6,154
Annual income from passengers' fares	4,500
Annual loss	$1,654

As against the possible increase in the cost of working the service by horse buses and consequent loss, there is no ground to anticipate any decrease in the profits of the motor bus; on the contrary, it will be able to perform easily another 20 miles daily should exigencies of any nature require such service.

A sixteen-passenger, 20-horsepower, gasoline, single-decked bus, carrying also ½-ton of baggage and in use at the Atlantic golf links hotel, Kilbrittam, Eng., has displaced no less than five horses and three vehicles—two pair horse coaches and single-horse car. These cost $150 per month to hire, and a driver at $5 per week had to be employed with each vehicle. The motor bus makes three return journeys of 18 miles each day, including about eight long stoppages on each journey to pick up and let off passengers and baggage. The motor bus runs 6 days per week and has single solid rubber tires on front wheels and twin solid rubber tires on the rear wheels. Excluding, therefore, holidays and Sundays, 300 days per annum are run and the cost works out at the figure previously given for this class of work, viz., 18.05 cents per mile. The two coaches and single-horse brake previously cost 16.85 cents per mile to run the same service, but this did not include the trouble and cost of management of three vehicles, at $375 per year, thus bringing the gross cost of the horse service to 19.16 cents per mile. It will be noted that the cost of hiring the horse vehicles was extraordinarily low and we mention this particular service for that reason, as it proves that under the most favorable circumstances imaginable the hotel or country motor bus easily beats horses in point of economy.

GARDNER-SERPOLLET STEAM FREIGHT AND PASSENGER VAN



BEAUFORT COUNTRY SERVICE GASOLINE WAGONETTE

As to the saving of time and trouble, the fact that the proprietor of the Atlantic Golf Links hotel abandoned a favorable contract for the hire of two coaches and a brake, together with five horses, and spent $3,750 upon a motor bus, proves that he considered the latter immeasurably superior to the horse service and worth so large an outlay. In addition to the ordinary horse service replaced by the motor bus it must also be borne in mind that the motor bus is tireless and can put in if necessary more hours' work daily than the horses and reach far distant places unreachable by them. The motor bus will put in a 40-mile journey in addition to and after it has finished the station work for the day. Or it can run another 40 or more miles in between the trains which have to be met only three times daily.

From the small motor bus for country or hotel work we turn to the combined motor bus and carrier. There are thousands of carriers throughout America who are unaware of the huge saving they can make by employing motor vehicles in their business. A motor carrier van designed to hold 1 ton of freight with passengers will do the work of four single-horse carrier vans. A motor carrier van with a capacity of 2 tons of freight and fifteen passengers will displace four pair horse carrier vans. It will be necessary, of course, to reorganize the van journeys when the horse vehicles are superseded by the motor, in order to distribute the journeys equally over the 6 working days of the week. To a man who has succeeded in building up a business sufficient to keep four horse vans employed this should offer no difficulty. Once the concentration is completed and the motor carrier is smoothly performing the work of the four horse vehicles displaced, there will be daily intervals of leisure which were never obtainable under the equine system. The leisure hours, however, will soon pall upon the active man and he will sigh for more work and hustle around to such good effect that he will shortly have to employ another motor van to assist him in carrying out the new business.

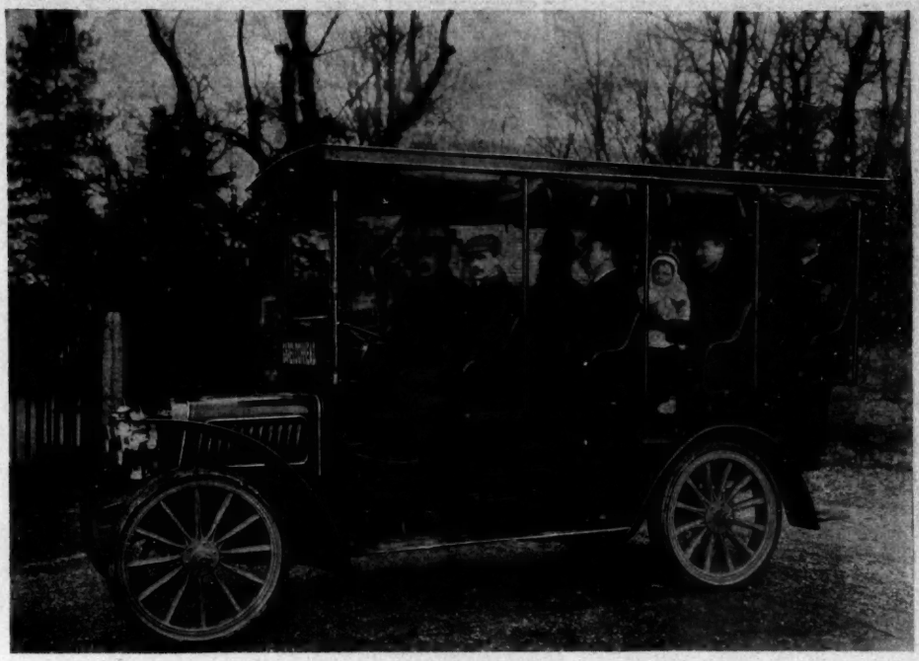
It may happen that where only one motor van is employed it will have to possess an impossible ubiquity in order to be in two places at once—that is, presuming two of the displaced horse vans worked into opposite towns on the same day. The alternative is not necessarily to be found in the purchase of another motor van, but in so maneuvering the single van that it performs the seemingly impossible and actually makes money out of the emergency. Freight sent by carrier from a market town can usually wait for a couple of hours, and so also can the passengers who have come out late by motor carrier, start back later than usual according to the time they started late from their homes. On the other hand, passengers and goods can start ½-hour earlier and return ½-hour earlier, and no objection will be raised; for whether early or late, as is mentioned below, there will always if desired be more time to transact business in the town visited than was available by the equine system. Furthermore, if the passengers wish to return after only a short visit they can do so by availing themselves of the midday trip provided by the motor. The risk of losing freight or passenger traffic by reorganization of the journeys or substitution of motor for equine traction is exceedingly small, because 99 per cent of persons who travel or send goods by stage do so for one of two reasons, either it is the cheapest or there is no other available system of transport.

Supposing, therefore, that two towns, A and B, are respectively situated 8 miles due north and 15 miles due south of the depot town and have markets or other special features on the same day of the week. Two horse vans have to be employed and leave the depot, say, at 8:30 a. m. This time has been fixed as the usual carriers' starting hour and the distances mentioned are taken as the average length of representative carriers' journeys. The horse vans, on arriving at their destinations, stand idly in the market place or in a yard for the rest of the day, awaiting a return load of freight and passengers. Four or 5 hours are thus unavoidably wasted with horses which meanwhile eat their heads off with impatience if they are in anything like good fettle. There will be no waste with

ANDREW CARNEGIE'S WOLSELEY GASOLINE STATION BUS

the motor van in such interurban service.

Leaving the depot at 8 a. m. sharp, it will travel to A, the nearest town, making lengthier detours enroute than the horses were capable of. These detours, it should be noted, constitute the plums of carriers' work, as they always command extra prices. Arrived at A, at 9 a. m., the motor will unload and pick up as much return traffic for the depot town and B as possible. There is certain to be a good through traffic between two market towns such as A and B on market days. The start for the depot town is made at 9:30 o'clock and with ample time for stoppages on the way the depot is reached at 10:30. By 11 o'clock the motor has picked up more passengers and goods for B, which is entered at 12:15, about 1¼ hours after the horse van was in the habit of appearing. The passengers from the depot town accordingly, by starting 2¾ hours later than previously, actually only lose 1¾ hours. If circumstances demand that B should have the benefit of the motor's first trip, this can be easily arranged.



ALBION GASOLINE COUNTRY WAGONETTE USED IN ENGLAND

On the second trip, still presuming, however, that B is just being left, a return is made at 2 o'clock, after allowing for a bread and cheese interval, and the depot is picked up at 3:15. Here any goods and passengers are dropped as desired and more traffic taken aboard in addition to the through traffic from B to A. At 4:30 the motor leaves A the second time with a full load, most of which is dropped at the depot at 5:30 and the balance is taken to B. On the stroke of 7—B is concluded to be the principal town and, therefore, the latest to be bidden good-bye to —the motor returns with another full load to the depot town and arrives home at 8:15, earlier than the horse vans were wont to, although B was left much later.

By thus maneuvering the motor it is possible to make two trips to A and back, two trips to B and back, two trips from A to B and one trip from B to A, all in a single day of 12¼ hours. The mean distance to be traveled will amount to 92 miles, an average of 7½ miles per hour, allowing an ample margin for stoppages and detours. The horse vans between them would have taken 24 hours—12 hours each—to work 16 and 30 miles, respectively, wasting from 8 to 10 hours waiting for return loads. The time actually spent on each motor journey is far less than necessary for the horses, and is enjoyably spent, whereas horse carriers' vans are intolerably tiresome and make a nuisance of even a 3-mile ride.

Should it occur that all the four displaced horse vans worked four different towns on the same day, the motor is still unbeaten and equal to the task, although it is best to put off the visit to one or two towns until the following day if possible. Granting this not being so, instead of returning from A and B to the depot town in the middle of the day, as in the previous exemplification, the motor can make a round trip to A, B, C and D in the order in which they may be geographically situated. It will take very little longer to do this than the horse vans occupied in going from A to B, so that the passengers will have no cause of complaint, although they may have to travel from double to quadruple the distance. The crudity of this arrangement, however, is that it will necessitate a larger vehicle than usual and much expenditure of fuel. The best possible system will be to embrace the two nearest towns in a first trip and the other two towns on the second trip, and so back to the depot town and the order in which the day's work commenced. In this way the necessity for a larger vehicle will be avoided, as the freight not wanted urgently can be carried on the second or third trips. Very few horse carrier vans load up to their full capacity, due to the incapacity of heavy horses to travel distances with steadily decreasing loads. A light horse would be useless on the job and a heavy draught horse would be run off its legs in 24 months if it started with a full load and ended with only half the weight. It must be kept on the trot owing to the presence of passengers and their impatience, even then, of its slowness, and it would be rapidly shaken to decrepitude by a load which did not call for the exercise of its normal tractive or pulling power practically throughout the journey. Long trips work especial havoc on equine flesh on stone roads.

THORNYCROFT'S HOTEL BUS FOR SMALL-TOWN SERVICE

note - "the ladies"

BRIEF BUSINESS ANNOUNCEMENTS

Boston—A. J. Coborn has secured the New England agency for the Cameron.

Lansing, Mich.—The J. H. Brady Auto Co., of Detroit, has been incorporated with a capital stock of $10,000.

Davenport, Ia.—The Davenport Motor Co. has sold out to B. C. Haupt, and the plant will be removed to 311 West Third street.

New York—The old home of the Tilden Club, at 2128-2130 Broadway, has been leased to Conrad Hubert, a dealer in automobile supplies.

Pittsburg—Application has been made for a charter for the Iron City Automobile Co. to manufacture automobiles and also to repair, sell, lease and store the same.

Boston—W. T. Helfer has resigned the managership of the Boston branch of the Diamond Rubber Co. and will be the eastern representative of the Independent Tire & Rubber Co.

Kingston, Pa.—Under the new management the Kingston Garage & Motor Car Co. is instituting many improvements. Among others, the repair department has been enlarged, and particular attention will be paid to the storage of cars.

Atlantic City, N. J.—The Waves Power Generator Co., of 416 Bartlett building, has been incorporated with a capital stock of $125,000, to manufacture wave motors, boats, floats, engines, dynamos, generators, etc. Incorporators, John A. and E. J. McManus, John J. O'Brien, John A. Hutton, G. C. Souder and Hector Tate.

Boston—A. E. Morrison, the representative of the Stearns and Oldsmobile cars, has leased a new building at the corner of Massachusetts avenue and Newbury street. The salesrooms will be ready about February 1. In the meanwhile he will have a salesroom at 92 Massachusetts avenue and his repair shop will be at 32 Cambria street.

Boston—E. A. Gilmore, who has been manager of the local Rambler agency for several days, has resigned. Mr. Gilmore will go to New York and will take charge of the agency of the White Sewing Machine Co. in that city. He will be succeeded in this city by his brother, Clarence A. Gilmore, who has the distinction of being one of the youngest managers of an automobile concern in Boston.

Elkhart, Ind.—Much consideration is being given the proposition to locate the factory of the Simplex company in this city. The company has not yet decided upon a permanent location, but the superintendent and representatives have inspected the plant formerly occupied by the Soudan company, and expressed themselves as much impressed. Temporary quarters have been leased in Mishawaka, and naturally endeavors are being made to induce the company to locate there permanently.

Los Angeles, Cal.—The H. O. Harrison Co. have completed plans for a new garage and salesroom.

Cincinnati—The Auto Motor Car Co. has secured the agency for the Stoddard-Dayton and the Welch.

Springfield, Ill.—The Central Automobile Co., of Chicago, has increased its capital stock from $2,500 to $5,000.

Columbus, O.—The Independent Tire & Rubber Co., of Akron, has increased its capital stock from $10,000 to $60,000.

Boston—The Prentiss Motor Car & Supply Co. will undertake for the coming season the agency in New England of the Studebaker line of cars.

Chicago—The Chicago Packard Co., of this city, has been granted permission to change its name to the Chicago Motor Car Co.

Chicago—A. H. Claflin has purchased a plot of ground at the corner of Wabash avenue and Twenty-first street, and will erect a building to be devoted to the manufacture of limousines and bodies for automobiles.

Camden, Me.—The Rockland Machine Co. has voted to remove its entire factory from Rockland to Camden, and will commence work immediately upon its new buildings. The company manufactures gasoline engines, and for some time has had an anchor factory and boat shop at Camden.

Duluth, Minn.—The Richardson Electric Co. has purchased the machinery and has leased the building formerly occupied by the Duluth Electric & Construction Co. It will carry on its electric construction and repair business in its new location at 210 West First street, and, in addition, will take over the automobile business formerly run by the Duluth company. Besides the sale of automobiles the Richardson company will operate a garage and a repair shop for automobiles.

Lynn, Mass.—Charles E. Whitten has become the local agent for the Thomas.

Pittsburg—The Keystone Automobile Co. will have the agency for the Stoddard-Dayton, as well as for the Welch.

Pittsburg—D. P. Collins, local agent for the Columbia, has secured a building on Seventh avenue, which will be fitted up as a garage and repair shop.

Jersey City, N. J.—George E. Blakeslee, manager of the Crescent Auto Co., has arranged for the exclusive agency for the Pope-Toledo in Hudson county.

Cincinnati—Joe Montfort is now located in his new garage at 21 East Ninth street. He will shortly fit up a machine and repair shop. Montfort is the representative of the Reo, Aerocar and the Mora roadster.

Tampa, Fla.—W. F. Ferman has sold his automobile repair shop to the Gulf Machine & Auto Works, a new corporation. The latter company will open a garage and repair shop at Florida avenue and Washington street.

New York—The George J. Scott Motor Co., agent for the Glide, has opened its new garage and salesrooms at 1720-22 Broadway. The main floor is to be used as a sales and showroom, while the upper floors will be devoted to the repair station and the storing of automobiles.

New Brunswick, N. J.—H. Clark Saunders, the president of the Middlesex Motor Co., has bought the controlling interest in the concern, and has secured 96 per cent of the stock. Charles A. White, the vice-president, and Louis A. Wolfson, the secretary-treasurer, each retain small holdings in the company.

Des Moines, Ia.—Notice has been given of the granting of a charter to the Sears-Nattinger Co., which is to manufacture and deal in automobiles, automobile supplies and sundries, etc. The capital stock of the company is $10,000. Until the annual meeting, to be held in January, 1907, the board of directors is to consist of W. W. Sears, who is to be president and treasurer until that time, and O. R. Nattinger, vice-president and secretary.

New York—F. E. Malone has leased for George C. Boldt, to the American Locomotive Co., the new automobile building at the northeast corner of Sixty-second street and Broadway. This is the largest building ever erected for the exclusive use of automobiles, and is said to be more completely fitted for that purpose than any other building in the world. The new garage will be occupied by the American Locomotive Automobile Co., a subsidiary concern of the American Locomotive Co., and the manufacturer of the Berliet car.

RECENT INCORPORATIONS

Chicago—Ben Hur Motor Car Co., capital stock $50,000, to manufacture and deal in motor boats and motor cars. Incorporators, J. Herbert Hopp, Albert A. Barrett and C. Glenn Moats.

Springville, N. Y.—Auto Pump Co., capital stock $10,000, to manufacture automobile pumps. Incorporators, Ralph B. Waite, Samuel E. Spencer and Lamont Shules, all of Springville, N. Y.

Camden, N. J.—J. H. Lake Co., capital stock $100,000, to manufacture steam and gasoline engines, yachts, etc. Incorporators, John H. Lake, William F. Gardiner and John H. Lukens, all of Camden.

New York—Schlosser Mfg. Co., capital stock $10,000, to manufacture and deal in motors, vehicles, boats, etc. Incorporators, Conrad and Philip Schlosser and Jacques Bach, all of New York city.

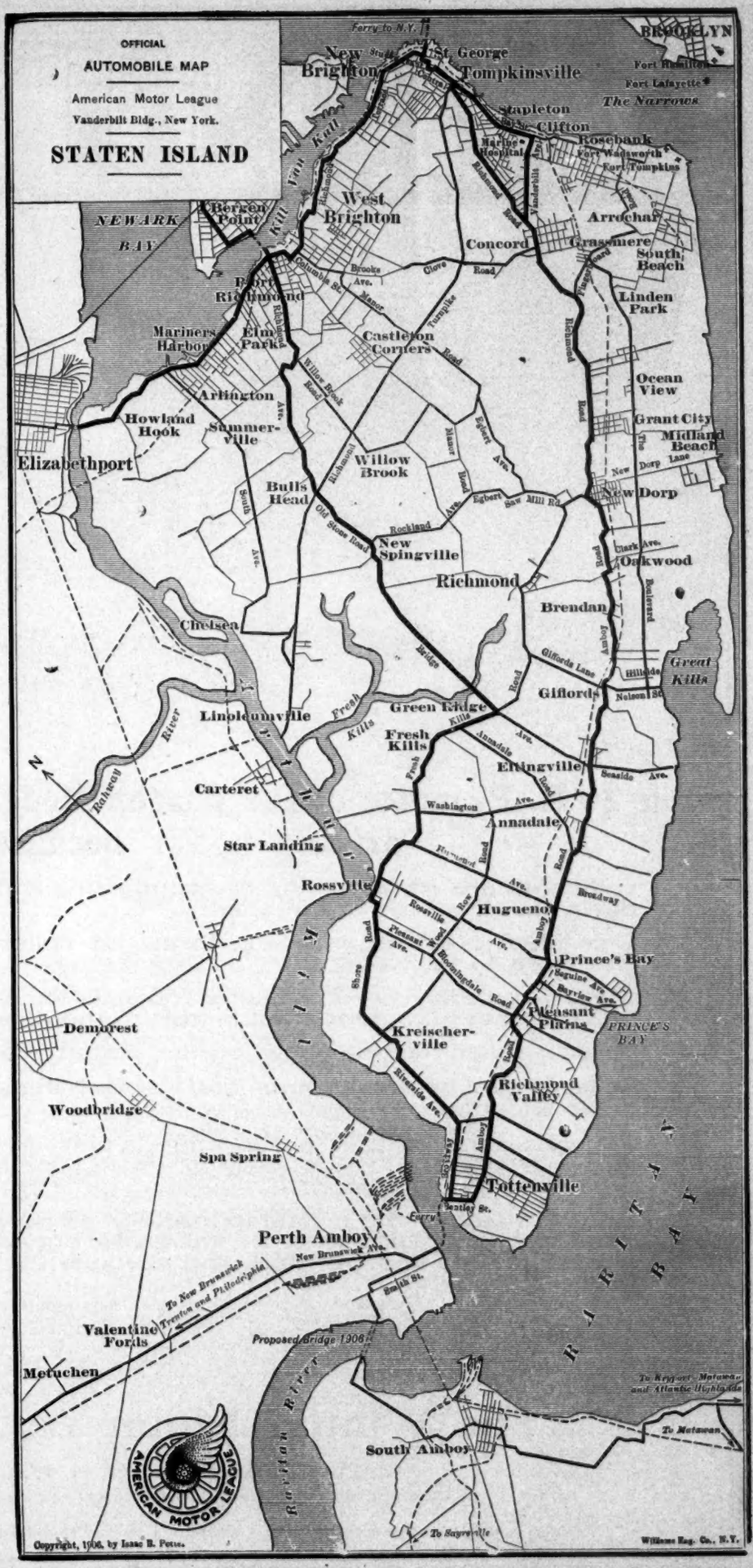
American Motor League Official Bulletin

National Headquarters, Vanderbilt Building, New York

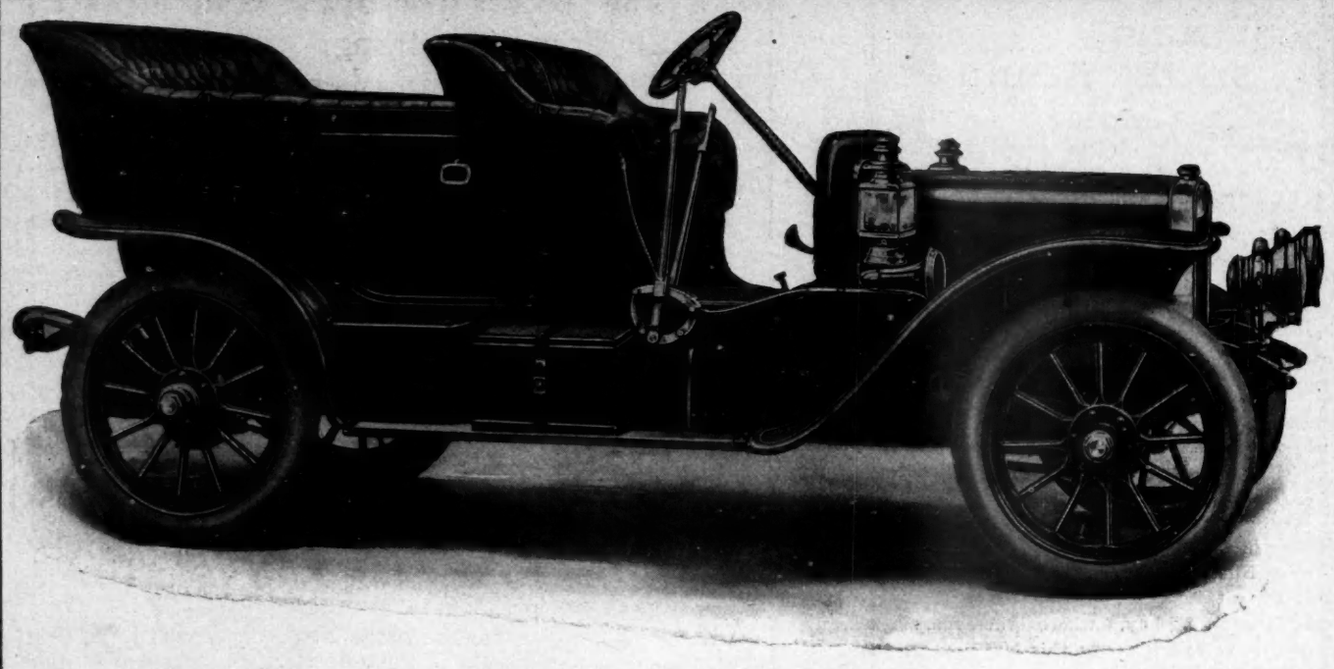
MAP OF ROUTES COVERING STATEN ISLAND

Staten Island lies in line of one of the most popular routes between New York and Philadelphia and contains many good roads running in different directions across the island. There is a much used ferry running from the south end of Manhattan to the Staten Island terminus at St. George, from which point there are several excellent routes running along the shore and across the island as shown by the map. The island may also be reached by ferries from Bayonne—at the terminus of Hudson county boulevard, which runs southward from Jersey City to this point—from Elizabethport, where there is a short ferry transit across Arthur Kill, and from Perth Amboy, where the ferry crosses to Tottenville. At this last named ferry there begins a straight road to Metuchen, N. J., and this road is part of the regular route from New York to Philadelphia. It connects, at Metuchen, with the routes running southward from Newark through Elizabeth as shown on one of our previous maps. Many of the hotels on Staten Island are fairly good and some are excellent. The authorities of Richmond county have spent large sums to improve the county roads within the last 10 years and the motorist will find good going in every part of the island that is worth a visit. The ocean shore may be reached by a number of short runs from the Richmond and Amboy roads; the forts—Wadsworth and Tompkins—which guard the entrance to the upper bay, are within a short run from St. George; and several attractive beach resorts have been established along the south shore. A couple of days of pleasant touring can be had here by any tourist who likes to explore an interesting section.

These official maps are printed by the league for the use of its members. They will appear in the official road books of which each member will receive a copy. Meanwhile the work is being extended, new maps made and new routes laid out as rapidly as information can be obtained and compiled. The league invites to its ranks all motor car users of good character. There is no initiation fee; dues $2 a year; full information will be sent on request. Address American Motor League, Vanderbilt building, New York.



WINTON



The 40 H. P. motor of the Winton Model M has remarkable driving power because—

Cylinders are off-set, giving the connecting rods an almost straight-down thrust on the crank shaft.

Cam shaft is off-set, reducing thrust on roller guide and requiring less work to lift valves.

Clutch and four-speed selective transmission run on seven annular ball bearings. Counter shaft is idle on the direct third.

Timken roller bearings used on the pinion shaft and in all wheels.

Roller-type universal joints and perfect-fitting driving gears cut down friction.

All cylinders, pistons, piston rings, shafts—in fact, all bearing surfaces—ground to the accuracy of 1-10,000 of an inch. That means "a sweet-running motor."

And lubrication—the most important of all power savers—is perfect. The "Shooting" oiler does it. No valves. No chance of failure. Oil delivered to pistons and bearings with absolute regularity and certainty.

Other Model M features are: Seats seven passengers. Multiple disc clutch, takes fourth speed from standstill as easily as the first. All working parts instantly accessible. Interchangeable, mechanically operated valves, all on one side of motor. One cam shaft for all valves. Horizontal drive shaft. Mechanically throttled carbureter. Improved Winton twin springs. Four brakes, all on rear hubs. Jump spark ignition. Centrifugal pump cooling. Materials tested to provide safety. Wheel base, 112 inches. Trunk carrier, gas, oil and tail lamps, horn, tools, etc., included as equipment. $3,500 f. o. b. Cleveland. Book 3 describes this car in detail. Book 4 describes the $2,500 Winton, Type X-I-V, five-passenger car, having individual clutch transmission.

The Winton Motor Carriage Co.

Member A.L.A.M.

CLEVELAND, OHIO, U. S. A.

Branches in New York, London, Boston, Philadelphia, Pittsburgh and Chicago.

We shall exhibit in New York at the 7th National Automobile Show only, Madison Square Garden, January 12-19, 1907.